

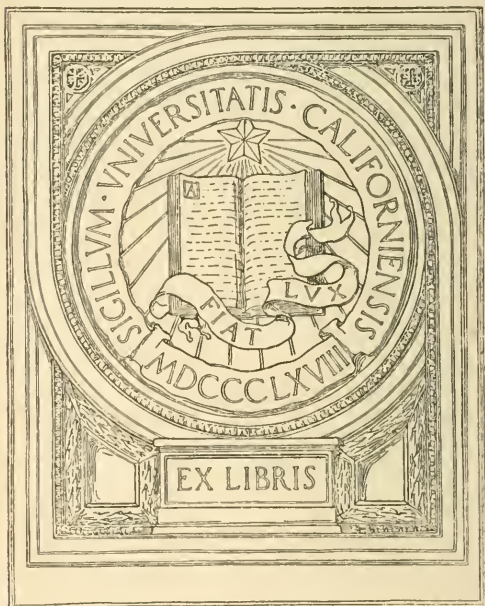
# HELPS for AMBITIOUS BOYS

*by* WILLIAM  
DRYSDALE



Herbert Moore  
390-e

UNIVERSITY OF CALIFORNIA  
AT LOS ANGELES



GIFT OF  
Dr. ERNEST C. MOORE





GEORGE DEWEY.

Admiral George Dewey, the ranking officer of the U.S. Navy, was born in Montpelier, Vt., in 1837, and entered the Naval Academy in 1854. He served with distinction in the West Gulf squadron in the Civil war, but his fame rests principally upon his victory in Manila Bay, May 1, 1898, in the war with Spain, in which he annihilated the Spanish Asiatic squadron, destroying eleven vessels and capturing five. He was immediately made a rear-admiral and thanked by Congress, and in February, 1899, he was given the rank of admiral. His reception in New York, in September, 1899, on his triumphal return from the Philippines, was one of the great public spectacles of the century.



HELPS FOR  
AMBITIOUS BOYS

BY

WILLIAM DRYSDALE

AUTHOR OF "THE YOUNG REPORTER," ETC.



NEW YORK  
THOMAS Y. CROWELL & CO.  
PUBLISHERS

COPYRIGHT, 1899  
BY THOMAS Y. CROWELL & CO.

APPENDIX TO THE  
TABLE OF CONTENTS

Rockwell & Churchill Press,  
Boston.

H.F.  
5371  
I 847

## INTRODUCTION.

---

left  
"THE secret of success is constancy to purpose." Energy alone is not sufficient. Every young American worthy the name is endowed with energy, but it may be misdirected and lost. Ally it with constancy to purpose, and the combination is all but irresistible.

Dr Moore  
Benjamin Disraeli, who used those words, knew well their meaning. Few men struggle harder for fame, honor, position, than did he, and he won them all. So may you win them, if you set a high mark for yourself and determine to surmount every obstacle that may stand in the way.

Constancy to purpose is almost a miracle-worker. Rarely does a young man reach his majority without an opportunity to see this for himself. A boy with little thought yet beyond his pleasures sets his heart upon some object that seems altogether beyond his reach. He has no money, his parents and friends have no money to spare. But if he fully makes up his mind to it, it is sure to come. Every dime saved, every dime earned, brings it nearer. No temptation can induce him to spend his little hoard, because he has a single object in view. If he has real constancy to purpose, he overcomes poverty, one of the commonest and most difficult obstacles, and accomplishes his purpose.

This is equally true in the greater affairs of life. The young man with constancy to purpose who determines to

make his way through college seldom fails. He sets another mark for himself, success in some particular calling, and (God giving him health and strength) he is almost certain to succeed. He often has reason to be surprised at the power of his own will.

In this volume the author has endeavored to give practical assistance to young men in selecting the mark and fixing their gaze upon it. It is not enough to tell a man what prizes are offered; he must be shown how to take the first steps toward winning them. He must have assistance in selecting the high mark which is to be the object of his constancy to purpose.

But the brightest mark, reached after years of effort, loses all its lustre and crumbles into the ashes of regret unless it be reached with a pure heart and a clear conscience. No apparent success can atone for the loss of these best of all possessions. The consciousness of doing right is worth more than gold. The greatest fortune in the world is not enough to pay a young man for the loss of his self-respect. This is not a belief, it is a fact; and the writer has sought to make this indisputable fact the corner-stone of every chapter in the book.

# CONTENTS.

---

CHAPTER	PAGE
I. ARE YOU MORTGAGED? . . . . .	1
II. A SOUND MIND IN A SOUND BODY . . . . .	10
III. WHAT ABOUT COLLEGE? . . . . .	22
IV. "EDUCATION IS NOT LEARNING" . . . . .	36
V. THE HARDEST WORK OF ALL . . . . .	46
VI. THE UNFORTUNATE IDLY BUSY . . . . .	53
VII. TO MAKE TWENTY THOUSAND DOLLARS IN FOUR YEARS . . . . .	65
VIII. "HE THAT HATH A TRADE HATH AN ESTATE" .	72
IX. A PROFESSIONAL CAREER . . . . .	82
X. THE TIDE IN THE AFFAIRS OF MEN . . . . .	89
XI. "IF THE COURT PLEASE" . . . . .	99
XII. THE STUDY OF THE LAW . . . . .	107
XIII. FEELING THE PULSE . . . . .	117
XIV. THE MAKING OF A PHYSICIAN . . . . .	130
XV. THE PULPIT . . . . .	139
XVI. "HERE AM I; SEND ME" . . . . .	152
XVII. THE REPORTER'S DESK . . . . .	162
XVIII. A NEWSPAPER MAN'S TRAINING . . . . .	172
XIX. WRITERS AND THEIR BOOKS . . . . .	183
XX. THE ART OF FICTION . . . . .	195
XXI. THE PUBLIC SERVICE . . . . .	206
XXII. THE MAN AND THE OFFICE . . . . .	218
XXIII. PUBLIC SPEAKING . . . . .	228
XXIV. AN ORATOR'S TRAINING . . . . .	237
XXV. THE LIMITED EXPRESS . . . . .	247
XXVI. A RAILROAD MAN . . . . .	256



CHAPTER	PAGE
XXVII. THE LEE SCUPPERS . . . . .	266
XXVIII. BEFORE AND ABAFT THE MAST . . . . .	275
XXIX. ELECTRICITY . . . . .	284
XXX. KEY, BATTERY, AND DYNAMO . . . . .	294
XXXI. RETAIL TRADE . . . . .	303
XXXII. THE TRADESMAN'S NEEDS AND OPPORTUNITIES,	313
XXXIII. ENGINEERING . . . . .	322
XXXIV. HOW SHALL THE ENGINEER BE MADE? . . .	331
XXXV. AGRICULTURE . . . . .	342
XXXVI. HE WHO BY THE PLOUGH WOULD THRIVE . .	352
XXXVII. THE ARMY THROUGH WEST POINT . . . .	362
XXXVIII. THE TRAINING OF AN OFFICER . . . . .	376
XXXIX. RANK AND FILE IN THE NAVY . . . . .	386
XL. TRAINING OUR NAVAL OFFICERS . . . . .	395
XLI. INVENTION . . . . .	404
XLII. THE CHILD OF NECESSITY . . . . .	412
XLIII. ASTRONOMY . . . . .	421
XLIV. THE STUDY OF THE HEAVENS . . . . .	431

## HELPS FOR AMBITIOUS BOYS.

---

### ARE YOU MORTGAGED ?

“For Life is not to live, but to be Well.” — *Martial*.

LET us take account of stock and measure our capital. In any undertaking in this world we must have capital of some kind, and if we would keep our affairs in order we must know how we stand.

The mercantile way of taking account of stock is not enough for us. So much cash on hand or due ; so much merchandise ; so much in securities ; so much in real estate ; and, on the other hand, so many liabilities. We must go deeper than that. What set of books will show us, except by inference, how our credit stands ? Or what are our chances of life — of available, healthy life ?

Some of the most important kinds of capital cannot be taken account of in the books, except inferentially. Credit is one of these. Look around among your young friends, and select two of them. The first is careless of his appearance, slouchy, lazy, never stays long in a place ; the odor of stale tobacco accompanies him ; he is sallow in the face, and fond of lounging about places where he has no business. You know just such a young man, do you not ? Any merchant in the town would laugh at him if he should ask for credit. He would not even make an effort to pay, and everybody knows it. He has no credit.

The other is just the opposite. Careful of his appearance, brisk, polite, rosy-cheeked, sure to keep his promises, always busy at something, not known in the saloons, but a favorite with the people he should know. You are well acquainted with him too. There is not a store in town but will gladly sell him anything he wants, and "charge it." He does not ask for trust; he does not need to; but if he should be driven to it in an emergency there would be no danger of refusal, because it is known that he would pay. That is credit. That is capital.

Draw up the muscle in your arm. Hard, is it, and moderately large? Put that down on the credit page, for that is capital. Good strong eyes, that do not ache after you have read a few pages? More capital. Sleep well every night? Put down a large credit for that. Sound of body, strong of limb, you walk with a firm tread, body upright, head erect, not slouching along as though your joints were loose? That is carriage. You can have your carriage before you have made your mark in life. And carriage is capital. In the life-race the man with carriage comes in ahead of the slouch. No one cares to employ a young man who drags his feet over the floor and seems in constant danger of dropping arms and legs about the premises.

"Lax in their gaiters, laxer in their gait."

When we estimate your youth you will think it an exaggeration if I tell you what a tremendous capital that is. It is almost beyond estimation. As an employé, the middle-aged man has no chance whatever beside you. There is an opening, let us imagine, in some mercantile house — a place that offers good present pay and great chances for the future. And you and a man of forty-five are the two applicants for the place. Which do you

think has the better chance of getting it? The middle-aged man has his first say, and he tells of his years of experience in the business. But he has been unfortunate; things have gone wrong with him; his wife and children are in danger of suffering; it would be a charity to give him employment. He has the subdued manner of a middle-aged man who has always been an employé, and an unfortunate employé. And you? When your turn comes you admit your ignorance of the business. You have nothing but your youth, some testimonials to your honesty, your willing—"I will try my best to learn, sir!" your good carriage, and your health and spirits.

Look at it from the standpoint of the employer. What are the points that he considers? Here is an unsuccessful man, an unfortunate man, and I do not like unsuccessful and unfortunate men. What have I to do with his wife and children? This is not a charitable institution. He knows the business, but he does not know my ways. He has worked for twenty years for one firm, or a dozen firms, and has acquired their methods. But their methods are not my methods, and it is hard to teach an old dog new tricks. Here, on the other hand, is a young man who is anxious to learn. His friends speak well of him, and he is active, healthy, cheery, willing, with nothing in the least "fresh" about him. He will do as I tell him, without arguing that so and so did it some other way. When I send him on an unpleasant errand he will do it and come back smiling, whereas the other would do it and growl. He will learn my ways, and make me a good man. I will take the youngster.

That credit page is filling up. The capital is larger than we had reason to suppose; youth, health, good name (which is only another term for credit), ambition, good

spirits, good carriage, good principles. It makes a fine showing. We should have clear sailing were it not for that other, the debit page. We cannot find just how we stand without balancing the one against the other. There are liabilities also.

The whole liabilities of a business man are not always shown in his books. Many a firm's books make a good showing when the firm is really insolvent. Some little book, tucked away in the secret compartment of the safe, or perhaps kept at home, would tell the story if we could see it. Business has fallen off, perhaps, and the necessary expenses cannot be reduced. In the necessity for ready cash, this piece of property has been mortgaged, that has been mortgaged, and the capital has been dangerously impaired. But these items do not appear in the day-book, or in the ledger. They are entered only in that little private book, which is carefully guarded.

It is that little private book of your own that you must look over before you strike your balance and determine how much capital you have. Look at each entry carefully, and answer for yourself, *to yourself*, Is my capital impaired? Am I mortgaged?

We have seen what your capital is. It is a bonny capital. It is as good a capital as half of our wealthiest men started with — perhaps better. But, like all other capital, it must be nursed. That is a misleading old adage which tells us to “take care of the pennies and the pounds will take care of themselves.” The pounds will not take care of themselves. The pounds must be watched. Two pounds must be watched closer than one; a thousand closer than a hundred; a million far closer than a thousand. No capital, large or small, takes care of itself. And an exceedingly dangerous thing to any form of capital is a mortgage upon it.



Particularly to your capital. Your capital is in such shape that a mortgage is a menace even more threatening than in most cases. If a merchant fails and is sold out he can begin again and accumulate new capital. But you cannot. Your capital was given you by God Almighty, to be faithfully nurtured, and wisely increased, and well accounted for; if you lose it once it is gone forever. There is no getting it back — no taking a fresh start. So beware of mortgages.

With your kind of capital, anything that tends to depreciate it is a dangerous mortgage. Your health and strength are large parts of your capital, and whatever interferes with them becomes a claim upon you that must surely be paid sooner or later, generally sooner. If you do anything to put your snap, your energy, your youthful spirits, in pledge the grasping creditor will soon demand payment, and you cannot put him off. Have you any of these mortgages upon your capital?

Think it over; no one can answer the question but yourself. You may have some such mortgages almost without knowing it, for they do not all come through vices or wrongful acts. Some things that your companions can do with impunity may be very hurtful to you. So simple a matter as the cup of strong coffee at breakfast may be filing a mortgage that will be very hard to liquidate. It is a powerful nerve stimulant, but with your youth and strength your nerves should not need stimulating; and they will not, if you take care of them. It is harmless enough in itself, but if you find that it hurts you, then it is not harmless. And late hours? Nothing will take the bloom from your face like keeping late hours. Hours that are early for another may be late for you. No matter what it is (and there are scores of these little things and myriads of larger ones that may

impair your capital), *anything* that hurts your health or impairs your strength is putting a mortgage upon you.

There are about five millions of real-estate mortgages in this country, and four millions of them at least are sources of continual worry and trouble to the mortgagors. But how many billions of these other mortgages are there, and how much more worry and sorrow do they cause! Look out for them.

But you are strong and active, and nothing seems to hurt you? Always at the front in the ball games, the rowing, in the gymnasium, in all athletic sports? All the more reason for caution. You may be too confident, too sure of your strength. How many of your acquaintances have in one second, at their healthful games, put such mortgages upon themselves as they cannot pay in a lifetime? It does not pay to overexert yourself, to take too many risks. The pitcher goes many times to the well, but at last it is broken. You know what the insurance companies say about taking risks? that a man is foolish to take any risks himself that any one else will take for him. But such risks as these no one else can take for you, not even your best friends. You must pay the penalty yourself. With a stiff leg, a weak arm, with any physical infirmity, you are handicapped. They are bad mortgages. Here goes a mortgaged young man past my window, limping along with a cane, on a wooden leg; a fine-looking young man otherwise. Other fellows had been hurt climbing around the coal trains; but he? ah, he would look out for himself! And so he did, till the morning when they carried him up to the doctor's with his leg crushed. His three brothers are all prospering in the city, but this one is a clerk in a little country grocery. He is mortgaged beyond his value. Here is another down the street with no right hand. He blew it

off with a shotgun. What chance has he beside men with two hands?

You know for yourself how keen the competition is. For every opening there are many applicants, and the most suitable men get the places. If you are handicapped, mortgaged, you fail. You need your whole capital, free and clear, to have any chance. Largely for this reason I want you to ask yourself whether you can afford to drain your strength with tobacco. We both know that it *is* a drain and a drawback, so we need not argue that point. Every one knows it, and old smokers know it best of all.

To form your own opinion in this matter try to look at it through other people's eyes. When you see a boy or young man smoking, you always have an opinion of your own about him, have you not? Just such an opinion other people would have about you if you were foolish enough to do it. Do you always feel, when you see a boy smoking, that something has been lacking in his training? And is that not a reflection he casts upon his parents and the way they have "brought him up"?

What would you think, if you were an employer, of a young clerk who was always on the watch for a chance to puff at his cigarette? Who laid the reeking half of one on the window sill last thing before coming in, and started it afresh the first thing on going out? Who quieted your nerves with the incessant "snap," "snap," of matches striking? Who was forever perfumed with the vile scent of cigarette smoke? You know just such a young man, do you not? Would you employ him? Or, being a young man yourself, would you set him up for a happy model to follow? Is he not heavily mortgaged?

But bad as it is, this is not the worst about tobacco.

Ask any smoker you know whether the passing stimulus it gives is not followed by a corresponding depression. Then ask him whether a drink is not the quickest thing to remove the depression. See whether he does not look out of the corner of his eye when you ask him that. But no matter; keep on asking. Ask him whether that drink does not call for another smoke, and that smoke for another drink. Ask him, in short, as a man of experience in such matters, whether tobacco and alcohol are not first cousins, living usually in the same house. Alcohol, remember; not beer, not whiskey, simply alcohol. It is alcohol that the drinker wants, and that he takes. The uniform that it wears makes no difference. Whether it comes in the form of beer, or spirits, or wine, or even hard cider, it is the same old alcohol; the same genial, jovial highwayman who killed a thousand times more Americans last year than were killed in the war with Spain. And he will kill just as many this year; do not let him kill you.

It is hardly necessary for us to discuss the alcohol question, is it? You know all that you care to know on that subject, do you not? We might as well talk about your experimenting with doses of strychnine. If you walk into that trap you will do it with your eyes wide open. When a young man once comes to that habitually, the mortgages upon him are already foreclosed, and it is too late for discussion. The sheriff's clerk is already in the shop, taking any inventory of the stock, making ready for the sheriff's sale. Capital gone, credit gone; the shutters are up to stay.

Here are many pitfalls we have been looking at. But there are good broad solid roads between them, leading to happiness, honor, wealth, distinction. A grand army of true-hearted young Americans safely travel those

roads every year: strong, healthy, brave, ambitious, not a shadow of claim upon their capital. No mortgages upon them. The roads are crowded, and the halting ones are left behind in the crush. The sickly ones have to be helped along. The strongest man, mentally and physically, is first across. And those who have slipped? Ah, they, poor fellows, are down in the pits!

“There is this difference,” said the wise Colton, “between those two temporal blessings, Health and Money: Money is the most envied, but the least enjoyed; Health is the most enjoyed, but the least envied; and this superiority of the latter is still more obvious when we reflect that the poorest man would not part with Health for Money, but that the richest would gladly part with all their Money for Health.”



## A SOUND MIND IN A SOUND BODY.

“My good friends, while I do most earnestly recommend you to take care of your health and safety, as things most precious to us, I would not have that care degenerate into an effeminate and over-curious attention, which is always disgraceful to a man’s self and often troublesome to others.” — *Burke*.

“Be sober and temperate, and you will be healthy.” — *Benjamin Franklin*.

“Health is indeed so necessary to all the duties as well as the pleasures of life that the crime of squandering it is equal to the folly; and he that for a short gratification brings weakness and disease upon himself, and for the pleasure of a few years passed in the tumults of diversion and clamors of merriment condemns the maturer and more experienced part of his life to the chamber and the couch, may be justly reproached, not only as a spendthrift of his happiness, but as a robber of the public; as a wretch that has voluntarily disqualified himself for the business of his station and refused that part which Providence assigns him in the general task of human nature.” — *Dr. Samuel Johnson*.

“Every one is full of the miracles done by cold baths on decayed and weak constitutions.” — *Locke*.

“Cheerfulness is in the first place the best promoter of health. Repinings and secret murmurs of heart give imperceptible strokes to those delicate fibres of which

the vital parts are composed, and wear out the machine insensibly ; not to mention those violent ferments which they stir up in the blood and those irregular disturbed motions which they raise in the animal spirits. I scarce remember in my own observation to have met with many old men, or with such, who, to use our English phrase, wear well, that had not at least a certain indolence in their humor if not a more than ordinary gayety and cheerfulness of heart. The truth of it is, health and cheerfulness mutually beget each other, with this difference, that we seldom meet with a great degree of health which is not attended with a certain cheerfulness, but very often see cheerfulness where there is no degree of health." — *Addison*.

"The keeping insensible perspiration up in due measure is the cause as well as the sign of health, and the least deviation from that due quantity, a certain forerunner of disease." — *Arbuthnot*.

"Men that look no further than their outsides think health an appurtenance unto life and quarrel with their constitutions for being sick ; but I, that have examined the parts of men and know upon what tender filaments that fabric hangs, do wonder that we are not always so ; and considering the thousand doors that lead to death do thank my God that we can die but once." — *Sir T. Browne*.

"Gardening or husbandry and working in wood are healthy recreations." — *Locke*.

"In these days, half our diseases come from the neglect of the body in the overwork of the brain. In this railway age the wear and tear of labor and intellect go on without pause or self-pity. We live longer than

our forefathers ; but we suffer more from a thousand anxieties and cares. They fatigued only the muscles ; we exhaust the finer strength of the nerves." — *Lord Lytton*.

"One means very effectual for the preservation of health is a quiet and cheerful mind, not afflicted with vile passions or distracted with immoderate cares." — *Ray*.

"Health is a precious thing, and the only one, in truth, meriting that a man should lay out, not only his time, sweat, labor, and goods, but also his life itself, to obtain it, forasmuch as without it life is injurious to us. Pleasure, wisdom, learning, and virtue without it wither away and vanish ; and in the most solid discourses that philosophy would imprint in us, to the contrary, we dig no more, but oppose the image of a Plato being struck with an epilepsy or an apoplexy, and in this presupposition do defy him to call the rich faculties of his soul to his assistance. All means that conduce to health can neither be too painful nor too dear to me." — *Montaigne*.

"Seldom shall one see in rich families that athletic soundness and vigor of constitution which is seen in cottages where Nature is cook and Necessity caterer." — *South*.

"Who would not be covetous, and with reason, if health could be purchased with gold ; who not ambitious if it were at the command of power or restored by honor ? But alas, a white staff will not help gouty feet to walk better than an oak cane ; nor a blue ribbon bind up a wound so well as a fillet ; the glitter of gold or of diamonds will but hurt sore eyes instead of curing them ; and the aching head will be no more eased by wearing a crown instead of a common night-cap." — *Sir Wm. Temple*.

"The only way for a rich man to be healthy is by exercise and abstinence to live as if he were poor." —  
*Sir Wm. Temple.*

"No wisdom 't is to say, 'I 'll soon begin to live :'  
'T is late to live to-morrow ; live to-day."

*Martial.*

"Aye, and the body, clogged with the excess  
Of yesterday, drags down the mind no less,  
And fastens to the ground, in living death,  
That fiery particle of Heaven's own breath."

*Horace.*

"First health I ask, good fortune next, and third  
Rejoicing ; last, to owe naught to any man."

*Philemon.*

"The master of pleasure is not he who abstains from it, but he who uses it without being carried away by it." —  
*Aristippus.*

"Far better were it once for all to die,  
Than one's whole life to suffer pain and grief."

*Æschylus.*

"First among our greatest blessings, for which all men would pray, is health of body and mind." — *Isocrates.*

"Health, that snuffs the morning air." — *James Grainger.*

"There are three wicks, you know, to the lamp of a man's life: brain, blood, and breath. Press the brain a little and its light goes out, followed by both the others. Stop the heart a minute and out go all three of the wicks. Choke the air out of the lungs and presently the fluid ceases to supply the other centres of the flame, and all

is soon stagnation, cold, and darkness." — *Oliver Wendell Holmes*.

"Health consists with temperance alone." — *Pope*.

"Health is the second blessing that we mortals are capable of ; a blessing that money cannot buy." — *Izaak Walton*.

"He who has health is young." — *Freind*.

"He who has not health has nothing." — *Rousseau*.

"Health dwells in the forest and is the child of air and exercise." — *Copway*.

"Oh, what a blessing is health, and those who want it are the best able to feel its value !" — *Wm. Orton*.

"Health is the greatest of all possessions, and it is a maxim with me that a hale cobbler is a better man than a sick king." — *E. Bickersteth*.

"Health is the soul that animates all enjoyments of life, which fade and are tasteless, if not dead, without it. A man starves at the best and the greatest tables, is poor and wretched in the midst of the greatest treasures and fortunes ; with common diseases, strength grows decrepit, youth loses all vigor and beauty all charms ; music grows harsh and conversation disagreeable ; palaces are prisons or of equal confinement ; riches are useless ; honor and attendants are cumbersome and crowns themselves are a burden ; but if diseases are painful and violent they equal all conditions of life, make no difference between a prince and a beggar." — *Sir Wm. Temple*.

"Were a young man to write down a list of his duties, health should be among the first items in the catalogue ;



this is no exaggeration of its value, for health is indispensable to almost every form of human enjoyment." — *H. Mann.*

"If health is the most precious boon of life we must avoid everything that tends to injure or affect it; without it any considerable degree of labor is impossible. Health is the greatest of blessings and gives a zest to all other enjoyments." — *Dr. Faust.*

"Health is certainly more valuable than money, because it is by health that money is procured; thousands and millions are of small avail to alleviate the protracted tortures of the gout, to repair the broken organs of sense, to resuscitate the powers of digestion." — *Dr. Samuel Johnson.*

"The first wealth is health. Sickness is poor spirited and cannot serve any one; it must husband its resources to live, but health answers its own ends and has to spare, runs over and inundates the neighborhoods and creeks of other men's necessities." — *Ralph Waldo Emerson.*

"Better is the poor, being sound and strong of constitution, than the rich man that is afflicted in his body; health and a good state of body are above all gold, and a strong body above infinite wealth; there are no riches above a sound body and no joy above that of health." — *Sirach.*

"He that loseth his conscience has nothing left that is worth keeping; therefore, be sure you look to that. And in the next place, look to your health; and if you have it, praise God, and value it next to a good conscience." — *Izaak Walton.*

“You hoard your health for your own private use,  
But on the public spend the rich produce.”

*Dryden.*

“The building of a perfect body crowned by a perfect brain is at once the greatest earthly problem and grandest hope of the race.” — *Dio Lewis.*

“Half the spiritual difficulties that men and women suffer arise from a morbid state of health.” — *Henry Ward Beecher.*

“Without health, life is not life; it is only a state of languor and suffering, an image of death.” — *Rabelais.*

“Take care of your health; you have no right to neglect it and thus become a burden to yourself and perhaps to others. Let your food be simple; never eat too much; take exercise enough; be systematic in all things; if unwell, starve yourself until you are well again, and you may throw care to the winds and physic to the dogs.” — *W. Hall.*

“Regularity in the hours of rising and retiring, perseverance in exercise, adaptations of dress to the variations of climate, simple and nutritious aliment, and temperance in all things, are necessary branches of the regimen of health.” — *Mrs. Sigourney.*

“The morality of clean blood should be one of the first lessons taught us by our pastors and teachers. The physical is the substratum of the spiritual; and this fact ought to give to the food we eat and the air we breathe a transcendent significance.” — *Tyndale.*

“Wet feet are among the most effective agents Death has in the field. They have peopled more graves than

all the gory engines of war. Those who neglect to keep their feet dry are suicides." — *Abernethy*.

"Dyspepsia is the remorse of a guilty stomach." — *A. Kerr*.

"If men gave three times as much attention as they now do to ventilation, ablution, and exercise in the open air, and only one-third as much to eating, luxury, and late hours, the number of doctors, dentists, and apothecaries, and the amount of neuralgia, dyspepsia, gout, fever, and consumption, would be changed in a corresponding ratio." — *J. F. Clarke*.

"To become a thoroughly good man is the best prescription for keeping a sound mind in a sound body." — *Bowen*.

"The ingredients of health and long life are great temperance, open air, easy labor, and little care." — *Sir Philip Sidney*.

"With stupidity and sound digestion men may fret much, but what in these unimaginative days are the terrors of conscience to the diseases of the liver?" — *Carlyle*.

"Anguish of mind has driven thousands to suicide; anguish of body, none. This proves that the health of the mind is of far more consequence to our happiness than the health of the body, although both are deserving of much more attention than either receives." — *Colton*.

"Regimen is better than physic. Every one should be his own physician. And we ought to assist and not to force nature. Eat with moderation what agrees with your constitution. Nothing is good for the body but

what we can digest. What medicine can procure digestion? Exercise. What will recruit strength? Sleep. What will alleviate incurable evils? Patience." — *Voltaire*.

"Man subsists upon the air more than upon his meat and drink; and no one can exist for an hour without a copious supply of air. The atmosphere which some breathe is adulterated and contaminated and with its vital principles so diminished that it cannot avail to decarbonize the blood nor fail to excite the nervous system." — *Thackeray*.

"Refuse to be ill. Never tell people you are ill; never own it to yourself. Illness is one of those things which a man should resist on principle at the onset." — *Bulwer*.

"There are two things in life that a sage must preserve at every sacrifice, the coats of his stomach and the enamel of his teeth. Some evils admit of consolations, but there are no comforters for dyspepsia and the toothache." — *Bulwer*.

"Joy and temperance and repose  
Slam the door on the doctor's nose."

*Anonymous.*

"He who has health has hope, and he who has hope has everything." — *Arabian Proverb*.

"Better to hunt in fields for health unbought,  
Than fee a doctor for a nauseous draught."

*Dryden.*

"I have always found it a good plan to put books aside altogether for two days before a hard examination.

Before an examination, and indeed at all times, keep your head cool ; keep your feet warm ; take a light supper ; rise early, and get a beauty sleep before twelve o'clock."

—*E. J. Hardy.*

"By the blessing of God I am just the same as when I ended my twenty-eighth year. This hath God wrought chiefly by my constant exercise, rising early, and preaching morning and evening." — *Wesley.*

"I have an old cat from whom I have learned many lessons about health. She understands the hygienic value of a sun bath. If there is a warm spot in the garden she finds it, and then I go and sit beside her and think over something about which I am going to write or speak. As a rule the young man requires no other doctor but the sun and fresh air ; and the worst thing he can do if he is ill, or thinks that he is, is to consult one of those quacks who live by frightening young men. Even if he has become ill through his own folly it is much better to make a confidant of his father or the family physician than to have recourse to quacks or quackery." — *E. J. Hardy.*

"We should be very careful what we allow to go out of our mouths in the shape of words and what we allow to go into our mouths in the shape of food and drink. A schoolboy once finished an essay his class had to write on 'A Pin' with the observation that pins had saved thousands of lives. The master asked for an explanation, 'how had pins saved thousands of lives ?' 'Why, by not swallowing them,' was the boy's ready reply. It is just so that intoxicating drinks save the lives of more than four millions of total abstainers in England at the present time. They are saved as regards health, character, and purse, by not swallowing them." — *E. J. Hardy.*

“Whatever our inherited lacks and strong points, few who have looked into the matter can have failed to notice that the popular sports and pastimes, both of our boyhood and youth, good as they are as far as they go, are not in themselves vigorous enough or well enough chosen to remedy the lack. The top, the marble, and the jack-knife of the boy are wielded with one hand; and for all the strength that wielding brings it might as well have been confined to one. Flying kites is not likely to overdo the muscles, yet top-time, marble-time and kite-time generally cover all the available play hours of each day for a large portion of the year. Where work is chosen that only sturdy limbs can do, and that work is gradually approached and persistently stuck to by a boy, the sturdy limbs come. But when all that these limbs are called on to do is light, spasmodic work, and there is none of the spur which youthful emulation and pride in superior strength bring, what wonder is it if the result is a weakly article?” — *Wm. Blaikie.*

“On rising, let a young man stand erect, press his chest firmly out, and breathing deeply, curl dumb-bells (each about one-fifteenth of his weight) fifty times without stopping. This is biceps work enough for the early morning. Then placing the bells on the floor at his feet and bending his knees a little and his arms none at all, rise to an upright position with them fifty times. The loins and back have had their turn now. After a minute’s rest, standing erect, let him lift the bells fifty times as far up and down and behind him as he can, keeping elbows straight, and taking care when the bells reach the highest point behind to hold still there a moment. Next, starting with the bells at the shoulders, push them up high over the head and lower fifty times continuously. After another minute’s rest, start with the bells high

overhead, and lower slowly until the arms are in about the position they would be on a cross, the elbows being always kept unbent. Raise the bells to height again, then lower, and so continue until you have done ten, care being taken to hold the head six or more inches back of the perpendicular, and steadily to face the ceiling directly overhead, while the chest is swelled out to the uttermost. Rest half a minute after doing ten, then do ten more, and so on until you have accomplished fifty. This last exercise is one of the best known chest-expanders. Now that these five sorts of work are over, few muscles above the waist have not had vigorous and ample work. The lungs themselves have had a splendid stretch and you have not spent more than fifteen minutes on the whole operation. If you want to do a little hand and fore-arm work, catch a broomstick or stout cane at or near the middle, and holding it at arm's length, twist it rapidly from side to side a hundred times, with one hand and then with the other." — *Wm. Blaikie.*

"In the late afternoon a five-mile walk on the road at a four-mile pace, with the step inclined to be short, and the knees bent but little, and the foot pushing a little harder than usual as it leaves the ground. This will be found to bring the legs and the loins no inconsiderable exercise; all, in fact, that they will probably need. If shortly before bedtime each evening the youth who has been working as above, say for a month, will, in light clothes, and in low, easy shoes, run a mile in about seven minutes and a half, and a little later, under the seven minutes, or three nights a week make the distance two miles each night, there will soon be a life and vigor in his legs which used to be unknown; and if six months of this work brings a whole inch more on thigh and calf, it is only what might have been expected." — *Wm. Blaikie.*



## WHAT ABOUT COLLEGE?

"Now 't is the spring, and weeds are shallow rooted;  
Suffer them now, and they 'll o'ergrow the garden,  
And choke the herbs, for want of husbandry." — *Shakespeare*.

It is still true that "Knowledge is power." All the changes of the modern world have not affected the soundness of that old saying. But what is power? Mechanical power ages ago meant a thousand wooden levers and two thousand men to handle them. To-day a little engine does more work, with a man or boy to open and shut the throttle. Two thousand men have as much power now as they ever had, but there is no demand for them at such work. The form of power in use, in demand at different epochs, changes, whether it be physical or mental power. And the kind of knowledge required must change with it.

A little more than a century ago Major André showed his gold watch to his captors, to convince them that he was a gentleman. Would you be satisfied with such a test of gentility now? At an earlier period quotations from the Greek and Latin poets were much used in polite conversation, and were almost indispensable in the stilted and unnatural letters written in those days. The man who could use a few Latin phrases, particularly in talking with people who did not understand them, was thought a scholar and a gentleman. And the quotations are just as good and just as appropriate now as they were then. But it is no longer the custom to use them in general conversation. Customs change as well as the



development and application of power; and the form of knowledge we require changes with them.

"I wish to buy a shovel," you say to the hardware dealer.

"What are you going to use it for?" he asks. When you tell him that, he knows whether to show you a snow shovel, or a coal shovel, or a farm shovel.

"I am anxious for knowledge," I think I hear you say. Then first of all put the question to yourself, "What am I going to use it for?" When you have answered that, you can soon determine what kind of knowledge you need — what kind of an education.

Is a college education a good thing? Of course it is a good thing. Few persons would deny that. So is a knowledge of art, of harmony, of architecture, of the Egyptian hieroglyphics. Not, is it a good thing, but is it the best investment I can make of my time and money, is what you must consider. Under some circumstances it is the very best; under others it is a sad waste of capital. A parlor car is a fine thing to travel in; but sometimes it is more practicable to take the emigrant train. They both get there.

You frequently hear of those noble ancestors of ours who made their way through college despite difficulties that seem to us almost insurmountable: by chopping wood, by building fires, and in other such ways. Those stories are mainly true, and they reflect untold credit upon those men. But stop a moment to consider. In those days the average rural American killed his own steer, tanned its hide, and made his own boots. A man who had twenty thousand dollars was a very rich man; but he still went out to the pump to wash in the morning, like his poorer neighbor. This was a new country then, and there was no luxury and very little wealth. But times have changed.

The condition of college students in those days was a reflection of the condition of their parents — as it is now and will always be. The parents worked hard, the boys worked hard, and it was no disgrace to chop wood. Nor is it any disgrace now. But the man who chops wood and eats salt pork soon feels out of place and ill at ease among a company who do no manual labor and who dine on terrapin and roast duck. That is a natural law, and with all our American ideas of equality we cannot overcome it. Our equality is political, not social. The woodchopper may be a better man than the others, but he cannot long feel comfortable in their company. Here is a young millionaire who owns a steam-yacht and spends money freely. You are his equal socially, intellectually, and in every other way except in wealth. What pleasure should you have in his companionship? You could not forever be accepting favors that you were unable to return. Birds of a feather must flock together, or there is sure to be discord.

Our parents are no longer making their own boots, and college students no longer live in a state of primeval simplicity. With our increase in wealth has come easy and sometimes luxurious living, in college as well as out of it. The sons of wealthy men naturally gravitate toward college, for the name of it if for nothing else. It is no longer the custom for young men to work their way through college. It still *can* be done, and it still sometimes *is* done. But it is tenfold harder to do it now than it was a century ago. Perhaps our heroes of history could not have done it if the conditions had been then as they are now.

You may have noticed yourself, or you easily can notice by giving some attention to the matter, that those men who bewail their lack of a collegiate education are

often men who know nothing about colleges or what is taught in them — that it is not a college education as much as a common-school education which they lack. Distance lends enchantment to this view as to others.

A taste for learning and for things intellectual ; that is the first requisite if you would become a collegian. Not an earnest desire, if you please, to see your portrait in the newspapers as a great football player ; the two are sometimes confounded. Parents or others who are able and willing to pay at least the greater part of your expenses ; that is the second. You would find it very hard to chop, and hew, and shovel your way through college now, as you might have done if you had lived a century ago, and still preserve your self-respect. Yes, it can be done ; but he who does it successfully in this age is one in thousands.

Then health. Are you strong enough for it ? Hard study is hard work, and unless you go for hard study it is better not to go at all. You must not be number 99 in a class of 100. After you have been graduated from the common school several years of study are necessary to prepare you for admission to the lowest class, the freshman class, of any of the colleges. From the catalogues of many of our American colleges lying here before me I select those of Princeton and Lafayette to show you what the requirements are — one of the larger colleges and one of the smaller, judging them solely by their respective number of students.

For admission to the freshman class of Princeton University you must pass a satisfactory examination in the following studies :

1. *English.* The examination will be based upon the books prescribed by the uniform entrance requirements in English. Questions as to the subject-matter, structure, and style of these

books will be asked. Candidates must be prepared in all of the books required for the year of entrance. For 1898 the books prescribed were — for reading, Milton's *Paradise Lost*, Books I. and II., Pope's *Homer's Iliad*, Books, I., VI., XXII., and XXIV., *The Sir Roger de Coverley Papers*, Goldsmith's *Vicar of Wakefield*, Coleridge's *Rime of the Ancient Mariner*, Southey's *Life of Nelson*, and Carlyle's *Essay on Burns*; for study, Shakespeare's *Macbeth*, Burke's *Speech on Conciliation with America*, De Quincey's *Flight of a Tartar Tribe*, and Tennyson's *Princess*.

2. *Latin Grammar*. The inflections; the simpler rules for composition and derivation of words; syntax of cases and verbs; the structure of the sentence in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive; so much prosody as relates to accent, versification in general, and dactylic hexameter.

3. *Latin Composition*. Translation into Latin of easy continuous prose based upon Cæsar and Cicero.

4. *Cæsar*. The first five books of the Gallic War.

5. *Virgil*. The first six books of the *Æneid*, including the prosody of hexameter verse.

6. *Cicero*. Nine orations, including the four against Catiline, the orations for Archias and the Manilian Law, and any other three, preferably to be selected from the orations for Milo, for Marcellus, for Ligarius, and the fourteenth Philippic.

7. *Ovid*. Selections from the *Metamorphoses* (2,500 lines).

8. *Sallust*. The *Catiline* or the *Jugurtha*.

[7 or 8 may be offered in place of any three orations of Cicero.]

9. *Virgil*. The *Eclogues* and *Georgics*, or the last six books of the *Æneid*.

10. *Latin Sight Translation*. Sight translation into English from easy Latin prose writers, such as Cornelius Nepos, Aulus Gellius, Quintus Curtius, and Eutropius.

11. *Roman History and Geography*. The history of Rome down to the battle of Actium. The ancient geography of Italy and Gaul and the topography of the city of Rome.

12. *Greek Grammar*. The topics for examination in Greek grammar are similar to those enumerated under Latin grammar. Special stress is laid upon a thorough knowledge of the noun and verb inflections.

13. *Greek Composition*. Simple sentences and easy continuous discourse based upon Xenophon's *Anabasis*, chiefly to test the can-

didate's knowledge of accent, inflection, and the fundamental rules for the syntax of the noun and verb.

14. *Xenophon*. The first four books of the *Anabasis*.

15. *Xenophon*. The fifth, sixth, and seventh (chapters i-iii) books of the *Anabasis*.

16. *Herodotus*. The seventh book of the *History* (sections 1-60 and 172-239).

17. *Homer*. The first three books of the *Iliad*.

18. *Greek History and Geography*. The history of Greece down to the end of the Peloponnesian War. The ancient geography of Greece and Asia Minor.

19. *Greek Sight Translation*. Sight translation into English from easy Greek prose, such as the writings of *Xenophon*.

20. *Elementary French*. Translation at sight of easy French prose into English and of easy English exercises into French. Rudiments of grammar, including the irregular verbs. (So much as is in Whitney's *Brief French Grammar*, or Whitney's *Practical French Grammar*, Part I., or Edgren's, Part I.) Super's *Reader*, or Whitney's, is recommended, or an equivalent amount of reading.

21. *Elementary German*. Translation at sight of easy German prose into English and of easy English exercises into German. Rudiments of grammar, comprising declension of nouns; conjugation of auxiliary, regular, and irregular verbs; separable and inseparable verbs; declension and comparison of adjectives; pronouns; the most frequent prepositions; numerals; the principles of the normal, inverted, and transposed order. Fifty pages of easy prose: Grimm's *Märchen*, or Meissner's *Aus meiner Welt*.

Either 20 or 21 is to be offered, but not both.

22. *Advanced French*. Dumas: *La Tulipe Noire*, and Daudet: *Lettres de mon Moulin*. Translation into French of English exercises based on these books.

23. *Advanced German*. Five cantos of Goethe's *Hermann und Dorothea*, or Chamisso's *Peter Schlemihl*. Harris's *German Composition: Introductory Selections and Easy Narrative Selections* (Parts I., II.).

24. *Arithmetic*. Including only greatest common divisor and least common multiple; vulgar and decimal fractions; percentage apart from its commercial applications; square root; the metric system of weights and measures. Special emphasis is laid upon accuracy and facility in reckoning.

25. *Plane Geometry*.

26. *Algebra*. Through quadratic equations involving two unknown quantities — including radicals and fractional and negative exponents.

27. *Algebra*. Indeterminate equations of the first degree, ratio and proportion, variation, arithmetical and geometrical progression, undetermined coefficients, and the binomial theorem.

28. *Solid and Spherical Geometry*.

29. *Logarithms and Plane Trigonometry*.

In Princeton University there are about one thousand one hundred students in the regular college course. In Lafayette, with about three hundred students, the requirements are less. It is usually the case that the larger the college the higher are the requirements. Here is an outline of the examination for admission to the freshman class of Lafayette:

#### REQUIREMENTS IN ALL THE COURSES OF STUDY.

GEOGRAPHY. — *Modern*: Political Geography or Physical Geography.

HISTORY. — *United States*: Johnston, Eggleston, or Fiske.

MATHEMATICS. — *Arithmetic*: Complete, including the Metric System.

*Algebra*: Through Radicals and Quadratics (first twelve chapters of Wentworth's College Algebra, or an equivalent).

*Geometry*: Plane Geometry entire; as in Wentworth or Loomis.

ENGLISH. — *Grammar*: A general examination will be given without special reference to any particular text-book to test familiarity with paradigms and syntactical analysis, and the correct use of English idioms.

*Franklin's Autobiography* and *Milton's Paradise Lost*, Books I. and II.; to be thoroughly studied as to subject-matter, form, and structure, including the language used, as to its etymology, syntax, and prosody.

*Prose Composition*: The writing of a short essay will be required upon a subject drawn from the foregoing text-books. No candidate will be accepted in English whose work is notably deficient in point of spelling, punctuation, idiom, or division into paragraphs.

Every candidate must have read a certain number of works of English literature. It is expected that the reading shall be done under the direction of an instructor and accompanied by frequent examinations during the preparatory course, for which four years are appropriate.

#### CLASSICAL COURSE.

GEOGRAPHY. — *Ancient Geography.*

HISTORY. — *Roman History* to Augustus and *Greek History* to Alexander. Outline to *General History.*

LATIN. — *Grammar*: The Roman method of pronunciation is used.

*Cæsar: Commentaries*, four books, for a portion of which an equivalent in Nepos will be received.

*Cicero: Orations*, seven.

*Virgil: Æneid*, six books; *Bucolics*.

*Prose Composition*: Daniell's, or equivalent.

GREEK. — *Grammar*: Pronunciation according to the written accents and in accordance with the preface to Goodwin's *Grammar* or Hadley-Allen's, sections 11, 14, 19, 20, 21.

*Xenophon: Anabasis*, four books, for a portion of which an equivalent in The *Cyropedia* will be received.

*Homer: Iliad* or *Odyssey*, three books; or

*New Testament: Gospels*, three.

*Prose Composition*: Collar and Daniell, or equivalent.

Beyond a certain necessary amount your expenses in college must depend solely upon yourself. If you are in the habit of spending your money as fast as you get it, if a silver dollar burns holes in your pocket, if to see a desirable thing is equivalent with you to a wish to buy it, do not deceive yourself with the belief that you can go through college cheaply. You will not be more economical in college than you have been at home.

Most of the colleges publish an estimate of the necessary annual expenses of their students. The four given below are taken from the college catalogues; and before you consider them let me ask you a question. You have taken a journey, perhaps only a short journey, and



before starting you made an estimate of the expense? Railroad fare so much, hotel bills so much? Did you not find that the journey cost more than you estimated? The minute you leave home the expenses are increased. A man who is careless with his money may safely double the estimate he makes. A careful man had better add fifty per cent. Here are the estimates that four of the colleges make:

## HARVARD.

	Low.	Moderate.	Liberal.	Very liberal.
Tuition . . . . .	\$150	\$150	\$150	\$150
Room . . . . .	30	50	100	200
Furniture (annual average)	10	15	25	50
Board (39 weeks) . . .	117	160	160	390
Fuel and light . . . .	11	15	30	45
Sundries . . . . .	40	60	100	200
Total . . . . .	\$358	\$450	\$565	\$1,035

The above estimates do not include laboratory charges, books and stationery, clothing, washing, membership of societies, subscriptions, service, and the expenses of the long vacation, some of which are luxuries, and all of which vary with the means and habits of the individual student.



## YALE.

The subjoined table gives near estimates of the ordinary annual expenses in college, omitting clothing, vacation charges, and sundries :

	Lowest.	General Average.	Very liberal.
Treasurer's bill, tuition . . . . .	\$155	\$155	\$155
Rent and care of half room in college,	20	100	140
Board, 36 weeks . . . . .	125	175	250
Furniture, average of half room for 4 years . . . . .	10	25	40
Fuel (steam heat) and light, for half room . . . . .	15	20	35
Washing . . . . .	15	25	40
Text-books and stationery . . . . .	10	25	40
Subscriptions (to societies, sports, periodicals, etc.) . . . . .		20	100
Total . . . . .	\$350	\$545	\$800

## PRINCETON.

Approximate estimate of the necessary annual expenses for a student occupying an unfurnished room in one of the colleges, without including clothes, travelling or vacation expenses:

	Mini- mum.	Me- dium.	Maxi- mum.
Board, 36 weeks, at \$3 to \$7 . . . . .	\$108	\$180	\$252
Washing, 36 weeks, at 50 cents per week . .	18	18	18
Tuition and public room fees . . . . .	150	150	150
Infirmery fee (may be increased) . . . . .	4	4	4
Brokaw Building fee . . . . .	4	4	4
Matriculation fee (on entrance) . . . . .	5	5	5
Room rent . . . . .	30	60	175
Fuel . . . . .	10	20	30
Gas . . . . .		10	25
Total . . . . .	\$329	\$451	\$663
Deduct for students on scholarships . .	100		
	\$229		
Candidates for ministry in special need of aid,	30		
	\$199		

## LAFAYETTE.

	Liberal.	Moderate.	Minimum.
General college expenses . . . . .	\$24	\$24	\$24
Charge for college reading-rooms, gymnasium, etc. . . . .	12	12	12
Board, 36 weeks, at \$2.50 to \$4 . . . .	144	108	90
Rent of college room, \$15 to \$42 . . . .	42	25	15
Light and fuel . . . . .	15	12	10
Washing . . . . .	25	16	9
Tuition . . . . .	100	100	100
	\$362	\$297	\$260
Deduct for sons of ministers, <i>et al.</i> , in classical course . . . . .	. .	. .	100
			\$160
Deduct for same in other courses . . . .	. .	. .	\$50
			\$210
Lowest charges for necessary { classical . . . . .	. .	. .	\$160
expenses . . . . . { technical . . . . .	. .	. .	210
To which add for books, etc. . . . .	. .	. .	\$20

These tables, which differ widely, refer solely to the cost in money. There is also a serious cost in time; two years in preparatory school, four years in college: six years. Say, from fifteen to twenty-one. Those are

just the years in which you must prepare for the serious work of life ; in which you must fit yourself for whatever occupation you intend to follow. Do not forget to take that into account.

The temptations of college life you hear a great deal about. Naturally there are temptations in college. I do not throw them into one side of the scale or the other, because they are no worse in college than anywhere else. There are temptations everywhere : in college, in business, even at home. You must be able to resist them wherever you meet them. "Lead us not into temptation" is a good petition ; "Give us strength to resist temptation" is a better ; and the latter is only a different version of "Deliver us from evil."

What you get in college is not so much available knowledge as training. And you make valuable friends there. I would not have you overlook that great advantage of a collegiate course. No friends are like those of boyhood and young manhood. Those we may call the primary friends. You make new friends in later years, but generally they are only secondary. The colleges are full of fine young men, some at least of whom must in the future occupy positions of honor and importance. It is an advantage to know these men. And it is not selfish in you to look at it in this light, for you may yourself have favors to grant.

"Friendship is the only thing in the world concerning the usefulness of which all mankind are agreed." — *Cicero*.

I have tried to give you something to consider on both sides of the question, with a leaning perhaps toward a practical rather than a classical training. Otherwise I should not be dealing honestly with you, because my own observation shows me that the best men, the most valu-

able men, in business life, often are not college-bred men.

The circumstances of no two young men are precisely alike. Under most circumstances you may safely look upon a collegiate course as a luxury rather than as a necessity. If you can afford it, in money and time, while in college and afterwards, by all means — yes. If you cannot afford it — no. It is not indispensable to your success in business life.

“College learning,” said Henry Ward Beecher, “is very much like snow: the more a man has of it the less can the soil produce. It is not till practical life melts it that the ground yields anything.”

But, in college or out of it, study and think. Seneca truthfully says: “As the soil, however rich it may be, cannot be productive without culture, so the mind without cultivation can never produce good fruit.”

“T is education forms the common mind:

Just as the twig is bent the tree 's inclined.” — *Pope*.

### "EDUCATION IS NOT LEARNING."

"EVERY educated man is in some sense self-educated. No teacher, whatever his abilities may be, can force an education upon an unwilling pupil. No teacher can educate a persistently idle pupil. He can bridge over difficulties; he can point out the way; he can advise and direct; he can stimulate the student to activity; but the real work must be done by the student himself if it be done at all." — *Eggleston*.

"Mental power cannot be got from ill-fed brains." — *Herbert Spencer*.

"I have no sympathy whatever with the prevalent cant which teaches that the men commonly called self-made are greater or better or wiser than those whose acquirements or culture have been obtained through more regular channels. Dr. Franklin was a wise man and an able one, and Mr. Greeley has achieved a grand success in his profession, but they and others like them would have been even more successful, or at any rate their success would have come to them earlier in life, if they had had the advantages of a regular training." — *Eggleston*.

"Every man has two educations, that which is given to him and that which he gives to himself. Of the two kinds, the latter is by far the more valuable. Indeed, all that is most worthy in the matter he must work out and conquer for himself. It is this that constitutes our real and best nourishment. What we are merely taught

seldom nourishes a man like that which we teach ourselves.” — *Tynman*.

“For all the higher arts of construction, some acquaintance with mathematics is indispensable. The surveyor, on whose survey land is purchased; the architect, in designing a mansion to be built on it; the builder, in preparing his estimates; his foreman, in laying out the foundations; the masons, in cutting the stones; and the various artisans who put up the fittings, are all guided by geometrical truths.” — *Herbert Spencer*.

“It is necessary to ask yourself what your practical necessities are in the matter of learning; what your business in life is, or is to be; what information you will especially need in that business, and what studies will give you the necessary knowledge. To a man who intends to make himself a physician, for instance, a knowledge of chemistry is of prime importance, while the higher mathematics furnish him very little of any immediate value.” — *Eggleston*.

“Not one in fifty, even of classically educated men, can write a single page in perfectly accurate English.” — *Eggleston*.

“In common with the public, those in authority assume that the goodness of an education is to be tested by the quantity of knowledge acquired, whereas it is to be much more truly tested by the capacity for using knowledge,—by the extent to which the knowledge gained has been turned into facility, so as to be avail-

able both for the purposes of life and for the purposes of independent inquiry.” — *Herbert Spencer*.

“I think we may assert that in a hundred men there are more than ninety who are what they are, good or bad, useful or pernicious to society, from the instruction they have received. It is on education that depends the great difference observable among them. The least and most imperceptible impressions received in our infancy have consequences very important and of a long duration. It is with these first impressions as with a river, whose waters we can easily turn, by different canals, in quite opposite courses, so that from the insensible direction a stream receives at its source it takes its directions; and at last arrives at places far distant from each other; and with the same facility we may, I think, train the minds of children to what direction we please.” — *Loeke*.

“He who makes his son worthy of esteem by giving him a liberal education has a far better title to his obedience and duty than he who gives a large estate without it.” — *Socrates*.

“For discipline as well as for guidance, science is of the chiefest value. In all its effects, learning the meanings of things is better than learning the meanings of words. Whether for intellectual, moral or religious training, the study of surrounding phenomena is immensely superior to the study of grammars and lexicons.” — *Herbert Spencer*.

“All of us who are worth anything spend our manhood in unlearning the evils or expiating the mistakes of our youth.” — *Shelley*.



"A father inquires whether his boy can construe Homer, whether he understands Horace, or can taste Virgil; but how seldom does he ask or examine or think whether he can restrain his passions; whether he is grateful, generous, humane, compassionate, just, and benevolent." — *Lady Hervey*.

"If we inquire what is the real motive for giving boys a classical education we find it to be simply conformity to public opinion. Men dress their children's minds, as they do their bodies, in the prevailing fashion. A boy's drilling in Latin and Greek is insisted upon, not because of their intrinsic value, but that he may not be disgraced by being found ignorant of them." — *Herbert Spencer*.

"All but ten of the signers of the Declaration of Independence were trained in universities and colleges. More than a quarter of the members of the national Congress, from the beginning to this day, have been graduates of colleges. This fact, taking the ratio of population and graduates, shows that the colleges have given their graduates more than thirty chances to one. Were Cicero and Pitt and Sumner less effective in their oratory because of the affluence of their culture?" — *Dr. Foss*.

"In America the college is the child of the church. The seal of Harvard University, the oldest on the continent, bears the legend, 'Christo et Ecclesiæ.' Yale began in the gifts of a few Connecticut clergymen, who, bringing each a few books from his library, said, 'I give these for the founding of the college.' The late report of the Commissioner of Education shows that of the 368 colleges it enumerates, 30 only are known to be secular in their origin and management, while 261 are known to be under the care of different churches." — *Dr. Foss*.

"No sound fabric of wisdom can be woven out of a rotten raw material." — *Herbert Spencer*.

"Real education is the formation and training of the mind. To train the mind requires hard, patient, and independent thinking and work; the mere crude teaching a bundle of facts, which he acquires with no labor, and only retaining neither digests nor assimilates, is no training at all; they in no way nourish his mind, but deposited there are utterly as raw and undigested as he swallowed them. He may be a full man, but it is the fulness of a bottle, which will pour out what has previously been poured in, whether vinegar or claret; he may be a convenient depository of other men's thoughts; he may have sufficient capacity for holding them; but to call such a man educated is a misuse of terms." — *Cayley*.

"I received a most useful hint from Dr. Bacon, then father of the university, when I was at college. I used frequently to visit him at his living near Oxford. He would often say to me, 'What are you doing? What are your studies?' 'I am reading so and so.' 'You are quite wrong. When I was young I could turn any piece of Hebrew into Greek verse with ease; but when I came into this parish and had to teach ignorant people I was wholly at a loss. I had no furniture. They thought me a great man, but that was their ignorance; for I knew as little as they did of what was most important for them to know. Study chiefly what you can turn to good account in your future life.'" — *R. Cecil*.

"A human being is not in any proper sense a human being until he is educated." — *H. Mann*.

"Education does not mean teaching people to know

what they do not know; it means teaching them to observe as they do not observe.” — *Ruskin*.

“Knowledge does not comprise all advantages contained in the large term of ‘education.’ The feelings are to be disciplined; the passions are to be restrained; true and worthy motives are to be inspired; a profound religious feeling is to be instilled, and pure morality inculcated under all circumstances. All this is comprised in education.” — *Daniel Webster*.

“Next in importance to freedom and justice is popular education, without which neither justice nor freedom can be permanently maintained.” — *Garfield*.

“Education is a companion which no misfortune can depress, no crime destroy, no enemy alienate, no despotism enslave. At home, a friend; abroad, an introduction; in solitude, a solace; in society, an ornament. Without it, what is man? — a splendid slave, a reasoning savage.” — *Varle*.

“The true object of education should be to train one to think clearly and act rightly.” — *Henry J. Vandyke*.

“I call education not that which is made up of shreds and patches of useless arts; but that which inculcates principles, polishes tastes, regulates temper, cultivates reason, subdues passions, directs the feelings, habituates to reflection, trains to self-denial; but more especially that which refers all actions, feelings, sentiments, tastes, and passions to the love and fear of God.” — *Hannah More*.

“It should be the aim of education to make men first and discoveries afterward; to regard mere learning as subordinate to the development of a well-rounded, solid

moral and intellectual character; as the first and great thing to supply vigorous, intelligent, God-fearing citizens for the welfare of the land." — *Henry J. Vandyke*.

"Experience demonstrates that of any number of children of equal intellectual powers, those who receive no particular care in infancy, and who do not begin to study until the constitution begins to be consolidated, but who enjoy the benefit of a good physical education, very soon surpass in their studies those who commenced earlier and who read numerous books when very young." — *Spurzheim*.

"Instruction ends in the school-room, but education ends only with life. A child is given to the universe to be educated." — *F. W. Robertson*.

"Education is the knowledge of how to use the whole of one's self. Many men use but one or two faculties out of the score with which they are endowed. A man is educated who knows how to make an outlay of every faculty — how to open it, how to keep it sharp, and how to apply it to all particular purposes." — *Henry Ward Beecher*.

"The worst education that teaches self-denial is better than the best that teaches everything else and not that." — *J. Stirling*.

"The best education in the world is that got by struggling to get a living." — *Wendell Phillips*.

"It makes little difference what the trade, business, or branch of learning. In mechanical labor or intellectual effort the educated man is always superior to the common laborer. One who is in the habit of applying his powers in the right way will carry system into any occupation,

and it will help him as much to handle a rope as to write a poem.” — *F. M. Crawford.*

“Education is not learning; it is the exercise and development of the powers of the mind, and the two great methods by which this thing may be accomplished are in the halls of learning or in the conflicts of life.” — *Princeton Review.*

“Do not fall into the vulgar idea that the mind is a warehouse, and education but the process of stuffing it full of goods.” — *John M. Mason.*

“Every day’s experience shows how much more actively education goes on out of the school-room than in it.” — *Channing.*

“The true order of learning should be, first what is necessary; second, what is useful; and third, what is ornamental. To reverse this arrangement is like beginning to build at the top of the edifice.” — *Mrs. Sigourney.*

“Do not ask whether a man has been through college; ask whether a college has been through him — whether he is a walking university.” — *E. H. Chapin.*

“Never educate a person to be a gentleman or a lady only; but to be a man or woman. — *Herbert Spencer.*

“Nothing so good as a university education, nor worse than a university without its education.” — *Bulwer.*

“Learning passes for wisdom among those who want both.” — *Sir Wm. Temple.*

“I have seldom seen much ostentation and much learning met together. The sun rising and declining makes long shadows; at midday, when he is highest, none at all.” — *Bishop Hall.*

“Learning, if rightly applied, makes a young man thinking, attentive, industrious, confident, and wary ; and an old man cheerful and useful. It is an ornament in prosperity, a refuge in adversity, an entertainment at all times ; it cheers in solitude, and gives moderation and wisdom in all circumstances.” — *Palmer*.

“There are three classes of people in the world. The first learn from their own experience — these are the wise ; the second learn from the experience of others — these are the happy ; the third learn neither from their own experience nor from the experience of others — these are fools.” — *Chesterfield*.

“A man of the best parts and greatest learning, if he does not know the world by his own experience and observation, will be very absurd, and consequently very unwelcome in company. He may say very good things ; but they will probably be so ill timed, misplaced, or improperly addressed that he had much better held his tongue.” — *Chesterfield*.

“Learning makes a man fit company for himself.” — *Young*.

“They are not the best students who are most dependent on books. What can be got out of them is at best only material ; a man must build his house for himself.” — *Maedonald*.

“People are beginning to say that the first requisite to success in life is to be a good animal. The best brain is found of little service if there be not vital energy enough to work it ; hence to obtain one by sacrificing the source of the other is now considered a folly — a folly which the eventual failure of juvenile prodigies constantly illustrates. Thus we are discovering the wisdom of the

saying that one secret in education is to know how wisely to lose time." — *Herbert Spencer*.

"Could a man be secure  
That his days would endure,  
As of old, for a thousand long years;  
What things might he know!  
What deeds might he do!  
And all without hurry or care."

*Old Song.*

"One son at home  
Concerns thee more than many guests to come.  
If to some useful art he be not bred,  
He grows mere lumber and is worse than dead."

*Dryden.*

"How empty learning, and how vain is art,  
But as it mends the life and quiets the heart!"

*Young.*

"There are many things which we can afford to forget,  
which it is yet well to learn." — *Oliver Wendell Holmes*.

"How much a dunce that has been sent to roam  
Excels a dunce that has been kept at home!"

*Cowper.*

"A boy is better unborn than untaught." — *Gascoigne*.

## THE HARDEST WORK OF ALL.

“He that sips of many arts, drinks of none.” — *Fuller*.

No young man works harder or is more to be pitied than he who has no regular, settled employment. I do not refer to the idlers who are too lazy to work, nor to the gilded youth who have some one to provide for them, and are willing to live on such terms. We have nothing to do with them. There are in every town, in every community, a few young men who are not satisfied to go through what they consider “the grind” of learning a trade or profession. They would arrive by a short cut at the goal which others travel many a weary mile to reach.

You know some such young man as this. At eighteen or sooner he is done with school, and it is necessary for him to begin to earn money. Would he learn a trade? Not he. There are quicker ways of making money than that. Why, at the beginning he could not expect to earn more than three or four dollars a week. And it would soil his hands, ruin his clothes, and in the end he would be nothing but “a common workman.” He has no opportunity, perhaps, to learn a profession; or if he has the opportunity he has not the inclination.

He is a “hustler,” and he must do “something that pays right from the start.” That is a favorite expression with such young men, — “something that pays right from the start,” — and it is a suitable expression for the use of a “hustler.” It is not much of a compliment to a young man to call him a “hustler.” For my part I like the term



so little that I use it only to criticise it. A "hustler" is a man who splutters around a good deal without accomplishing much. He is on the go, catching trains, rushing in breathless, while the quiet, industrious man does the work and accomplishes the results. A "hustler" is all fuss and feathers.

He is going to begin to make money "right now." That is another of his expressions. "That's right!" "For a fact!" "Right on the nail!" These and a hundred such things he has continually at his tongue's end; phrases that were worn out long ago, and that were not very good when new. In some quarters they pass for wisdom, and he is called a bright young man.

To begin making money "right now" he starts in life with an agency for rubber stamps. From time to time when you meet him he tells you how well he is doing. He teases all his relatives and friends to buy rubber stamps. But suddenly the base changes. The stamp business is "played out," as he puts it, and he has a bicycle agency. It is the best bicycle made, at the lowest price. The profits are immense, he asserts; and he really works hard at it. The next summer he is peddling a book. Then he is agent for a sewing machine, and to replenish his capital he makes a raffle for the bicycle that was left on his hands. Then he has a fruit and candy stand somewhere. When he disappears for a time, he is "on the road" for some firm in the city. He has always "got a big thing" this time; but did you ever see him when he was not pressed for ready money for a few days?

You know just such a young man as this. I hope you have not loaned him any money, for he could not pay if he would, and perhaps would not if he could. He is forever borrowing. He wants twenty-five dollars if you

can spare it; and if not, twenty-five cents will do for the present. Little tricks verging upon dishonesty that he would have been ashamed of at first, he is familiar enough with when he grows older. A man must live, he argues.

"Neither a borrower, nor a lender be :  
For loan oft loses both itself and friend ;  
And borrowing dulls the edge of husbandry."  
*Shakespeare.*

Look at this young man at twenty-five, when the down upon his face has grown into whiskers and mustache. What is he good for? His friends are tired of making excuses for him. For years they said he was very young, and by and by he would settle down to something. But the charm of youth is gone, and he has settled down to nothing. He never will settle down.

What could he settle down to do? He has never learned anything. The long row of doors that are open to a boy of sixteen are closed to a man of twenty-five. His short cut has proved already to be the longest way round. He knows it himself by this time; he may not admit it, but he is as full of regrets as he once was of boasts. He is a failure.

If your father points out this description of a wasted young man for you to read, you can ask him: "Do you not think, sir, that the young man's parents were largely to blame?" He will answer in the affirmative, beyond a doubt. Something was wrong with the way those parents trained their boy. Their share of the penalty is the pain of seeing him a disappointed and worthless man almost at the outset.

But the possible neglect of our parents does not excuse our own shortcomings. Every boy and man must bear his own burdens. This young man in point should

have seen for himself that it is impossible in this world to get something for nothing. That was his prime mistake: he wanted to get something for nothing. After all, he paid dearly for the little he got, for he did harder work and much more unpleasant work than he would have done in learning a trade.

If he had looked fairly at the situation he would certainly have seen at the beginning that such a career would not do. He had no knowledge of business, no money. Suppose that selling rubber stamps had been a good permanent profitable business, equal to banking or manufacturing. If he could have done well at it, with his lack of experience and money, so could ten million other young men who were looking for opportunities. In six weeks the business would have been so overcrowded that it would have become worthless.

The easier a business is to learn the less is it worth learning. That is an invariable rule. It is worth no more than it costs. The occupations that can be learned quickly are always overcrowded. Look at telegraphing, for example. It is quick work learning to manipulate the dots and dashes, or to read by sound. I think you might set up for some sort of an operator in a month. How many scores of young men are watching for every vacancy? A few who become particularly expert are selected for the head offices in the cities; but their expertness is not a natural gift, they have acquired it by years of practice. What becomes of the others? Some thousands are at work in little country offices at starvation wages. Many more thousands are waiting hopelessly for openings even in those little offices. What anybody can do let anybody do but yourself.

And telegraphing is only one of many easily-learned occupations in which there always are and always will

be too many applicants for each place. Some of these occupations are, like telegraphing, good employments in themselves, wholesome, respectable, and occasionally profitable. Society would retrograde at least two generations if there were no telegraphs or telegraph operators. It is primarily because such occupations require no extended training that they are undesirable.

On the other hand, it is not every trade or profession which is difficult to learn, which requires years of preparation, that is desirable. Some employments put such limitations upon your powers that the best that is in you has no chance to come out. Stenography occurs to me as an example of this. An excellent thing in itself, and certainly not an easy thing to learn. It has been said that it is as difficult to learn as four or five foreign languages; but modern methods of teaching the art have made it easier. There are thousands of stenographers, but only a few first-rate ones, and the first-rate ones command good salaries. But the stenographer, even the best stenographer, is always dealing with other people's ideas; never with his own. One of the leading magazines will pay Hall Caine or Conan Doyle or Rudyard Kipling a hundred dollars for a page of manuscript. The stenographer will "take" and write the page for a dollar. It is the ideas that command the price — perhaps not the ideas on that particular page, but ideas previously expressed that had made the man famous. One of the great speakers spends weeks preparing the outline of a speech, and when it is partially in shape in his mind he dictates it to his stenographer, to be filed and polished when he sees it on paper. It is a great thing to be able to write it as fast as it can be spoken. Often it is a profitable thing. But is it the best thing that you can see in store for you? With the world before you, and all its

occupations to choose among, why not as well aim to be the great speaker, the great writer, yourself? — to furnish your own ideas, and let other stenographers put them on paper?

In stepping aside for a moment to mention telegraphing and stenography as examples of different occupations, you will not imagine that I include their followers among the shirkers. Far from it. They are both good occupations. The question for you is whether they are the best — they and many other callings that they illustrate. The man of twenty-five who has had no training may ask what is good enough for him. For you, nothing is good enough but the very best you are capable of.

It is not the present you must look at so much as the future. While we cannot foretell the future we can in business affairs often form a very correct estimate of it; and the better informed we are of the surroundings the better estimate we can make. The most successful business man of my acquaintance, whose wealth is almost fabulous, has made his whole fortune by forming correct estimates of future demands. He is about to build a railroad, let us say. No matter how thinly populated is the country through which it is to run, the question is, With good railroad facilities, will it improve? Not what is it now, but what will it be next year, ten years hence, twenty years? What about the southern terminus? Can we build up a good shipping trade there? And does not almost every successful business man owe his triumphs to looking out for the future?

Though you are not yet in business, it is as important for you to look into the future as for this great railroad president. And you can do it in your case as well as he in his. Your acquaintance who changes from this trifling agency to that, from one makeshift to another, may be

making ten dollars a week at present out of his rubber stamps, whereas you cannot make more than three or four while learning a trade, — or perhaps nothing at all while learning a profession. But what about next year? ten years hence? You cannot wait to see how he turns out, but look at some similar person you know who has already failed to turn out. Do you wish to follow such an example — to be a burden to yourself and your friends before your beard is fairly grown? Many employments that might answer for you at present would make you look ridiculous five years hence. A boy may do with impunity some things which a man may not. The train boy in his bright uniform does a legitimate business and generally makes a good income; but the train “boy” who is forty years old, though he does the same legitimate business, looks out of place. He has stood still while others were advancing. An American boy may under some circumstances be a bootblack with propriety; but an American man who is a bootblack advertises the fact that so far he has been a failure.

Look ahead and picture yourself ten years hence in the calling you contemplate. What are the probabilities? Do you not see even now, before you have gained your experience of life, that the best things are always the hardest to reach, and take most time? That what is worth having must be well paid for? And that those things which are easily acquired, though they may offer immediate profit, are in the long run of least value, and give the most meagre results?

“A business with an income at its heels  
Furnishes always oil for its own wheels.”

*Cowper.*

## THE UNFORTUNATE IDLY BUSY.

"Thus idly busy, rolls their world away."— *Goldsmith*.

"I live, an idle burden to the ground." — *Homer*.

"There is no remedy for time misspent,  
No healing for the waste of idleness,  
Whose every languor is a banishment  
Heavier than active souls can feel or guess."

*Aubrey De Vere*.

"Oh, how can he expect that others should  
Build for him, sow for him, and at his call  
Love him, who for himself will take no heed at all."

*Wordsworth*.

"The ugliest of trades have their moments of pleasure.  
Now if I were a gravedigger, or even a hangman, there are  
some people I could work for with a great deal of enjoyment." — *Douglas Jerrold*.

"There is an hour in each man's life appointed  
To make his happiness, if then he seize it."

*Beaumont and Fletcher*.

"This could have but happened once and we missed  
it, lost it forever." — *Robert Browning*.

"He that will not when he may,  
When he will, he shall have nay."

*Burton*.

"There's a place and means for every man alive."  
*Shakespeare*.



“Of all the troubles of the young, nothing is more troublesome, in many cases, than the choice of a calling in life. The case where this is so is where there is not an hereditary position for the young man to fall into. Some businesses have descended from father to son for many generations, and a boy is destined from birth for his life’s work; or he is urged to it by a natural aptitude and overmastering taste. To the many young men, however, who have no family connections which claim them for certain walks in life, and no particular bias or leaning for some trade or another,—to such young men the choice of a calling in life is an anxious matter.” — *E. J. Hardy.*

“Ask yourself, What is that profession which I dislike least? Go into that, do your best, and habit, which is second nature, will soon make it agreeable to you. Captain Cook, one of our greatest sailors, was at first thought to have made a mistake in choosing the sea as his calling; and Sir James Simpson, the inventor of chloroform, wanted at the outset to quit the medical profession. The choice may be between this and idleness, and that is the greater evil.” — *E. J. Hardy.*

“It would be well if boys of every class were taught a trade, for a trade thoroughly mastered means riches in the arms. I know that there are some foolish people who think it is more respectable to be a clerk, and to wear a black coat, than to practise a trade. A clerk’s life, however, is not nearly as healthy as that of a mechanic, nor is the work of copying letters to be compared for a moment with the interesting work at a productive trade.” — *E. J. Hardy.*

“There is no secret about amassing wealth. All you have to do is to attend to business and go ahead; except



one thing, and that is, never tell what you are going to do until you have done it." — *Cornelius Vanderbilt.*

"One place may have less pay and yet be better than another which produces more money. It may have fewer temptations and more moral and intellectual advantages." — *E. J. Hardy.*

"No man is born into the world whose work  
Is not born with him. There is always work  
And tools to work withal, for those who will,  
And blessed are the horny hands of toil!"

*Anonymous.*

"To talk of rest when there has been no work is a mockery — it is then a pleasure we have no right to — a reward we have not earned; and it will then be as little refreshful as the sleep of night to one who has slept and yawned through half the day." — *Dean Farrar.*

"A man proves a miracle of genius because he has been a miracle of labor." — *Sidney Smith.*

"An honorable defeat is better than a mean victory." — *Anonymous.*

"If I were to try to comprise into one sentence the whole of the experience I have had during an active and successful life, and offer to young men as a rule and recipe for certain success in any station, it would be comprised in these words: 'Duty first and pleasure second.' From what I have seen of young men and their future progress I am satisfied that what is generally termed bad fortune, ill luck, and misfortune is in nine cases out of ten simply the result of reversing the above simple maxim. Such experience as I have had convinces me that absence of success arises in most cases from want

of self-denial and common sense. The worst of all maxims is, 'Pleasure first and duty next.' — *Nasmyth*.

"He either fears his fate too much, or his deserts are small,

That dares not put it to the touch, to gain or lose it all."

*Anonymous.*

"The great thing is to make one's self necessary in a situation, and to prove to employers that their interests are safe in our hands and that they have not got a mere hireling in their service. The rising man is one who attracts attention by doing something exceptional and beyond the range of his special department. And when he has thought of something good, he keeps his own counsel." — *E. J. Hardy*.

"I know a man who is perhaps the youngest colonel in the army, and the way he got his present position was as follows: In a battle of the last Afghan war all the officers of a battery of horse artillery were killed. My friend galloped up and said to the men that he would lead them, and he did so in such a way that his self-assumed promotion was confirmed by the authorities. When his chance came to him he was neither asleep nor deficient." — *E. J. Hardy*.

"Be sure that every one of you has a place and a vocation on this earth, and that it rests with himself to find it out. Do not believe those who too lightly say that nothing succeeds like success. Effort — honest, manful, humble effort — succeeds by its reflected action better than success, which indeed, too easily and too early gained, not seldom serves, like winning the first throw of the dice, to blind and stupefy. Get knowledge all you can; be thorough in all you do; work onwards

and upwards; and may the blessing of the Most High soothe your cares, clear your vision, and crown your labors with reward!" — *Gladstone*.

"The man who does not look up will look down; and the spirit that does not try to soar is destined, perhaps, to grovel." — *Lord Beaconsfield*.

"If I were a cobbler I would make it my pride  
The best of all cobblers to be;  
If I were a tinker, no tinker beside  
Should mend an old kettle like me."

*Anonymous.*

"The struggle for life is becoming more and more severe, and the difficulty of gaining a livelihood experienced by thousands of youths is greater and greater. Under these circumstances, if a young man is wise he will make the conditions of life as simple as possible, and save himself from every needless expense." — *E. J. Hardy*.

"Do not trust in luck, for bad luck is the only kind that comes to people who trust in luck. Seek small and steady gains, and do not speculate. Save when young to spend when old. Mind whom you marry, and do not marry until you can afford a wife. Make all the money you can, and do all the good you can with it, remembering that he who lives for himself alone lives for the meanest man in creation." — *E. J. Hardy*.

"The darkest hour in the history of any young man is when he sits down and considers how to make money without honestly earning it."

"Thy light is appointed, go follow its hest;  
Thy journey's begun, thou must move and not rest;

For sorrow and care cannot alter thy case,  
And running, not raging, will win thee the race."

*Anonymous.*

"Be careful what you sow, boys !  
For seeds will surely grow, boys !  
If you plant bad seed  
By the wayside high  
You must reap the harvest,  
By and by  
And the boy who sows wild oats to-day  
Must reap wild oats to-morrow."

*Anonymous.*

"Sow an act, reap a habit ; sow a habit, reap a character ; sow a character, reap a destiny." — *Old Proverb.*

"It is the duty of every man to make money enough to supply the wants of himself and of those dependent upon him. It is his privilege to make as much more as he can without sacrificing worthier ends." — *Eggleston.*

"An especially important part of every man's career is its beginning, upon which, in a greater degree than we are apt to think, depends the prosperity of the man throughout. The choice of the business determines the life of the man. It limits him on every hand, moulding him physically, intellectually, and even morally sometimes ; it determines how much and what kind of work he shall do ; how much leisure he shall have ; what books he may read ; what his associations are to be, and in a hundred other ways affects his daily life to the end and shapes his character far more certainly than even his previous education has done." — *Eggleston.*

"Of an unwise choice comes failure probably — inefficiency and discontent certainly. But to choose

wisely one must choose not carefully only, but intelligently too. He must know himself as thoroughly as possible, and must govern his decision by correct principles, taking care that mere fancy shall have nothing whatever to do with it. A misstep here is fatal in most cases and a source of ill always." — *Eggleston*.

"The first point to be considered in the choice of a business is your ability to earn a proper livelihood in its pursuit. If it does not give you a reasonable promise of that it is not a fit business for you. The laborer is worthy of his hire, and you have no right to withhold the hire even if you be yourself the laborer in question. The world does not owe you a living, as the phrase goes, but you owe it to the world to earn a living for yourself. You must live somehow, and have no right to live upon the product of other labor than your own." — *Eggleston*.

"It is necessary also to consider the question whether the business is likely to yield more than a living. Money in excess of one's actual needs is a powerful agent, greatly increasing one's capacity for good work, and so this point is by no means to be neglected, though it is secondary in importance to some others. Other things being equal, that business is best which will certainly yield a support and is likely to yield the largest surplus." — *Eggleston*.

"It is far better work to make particularly good horse-shoes than to practise law or medicine only tolerably well. The man to whom Nature has given a genius, or even a talent, for mechanics, positively wrongs his fellow man when he chooses to devote himself to a business in which he is less able to excel." — *Eggleston*.

“Happiness should be your great object, and it is to be found only in independence. Look not for success to favor, to partiality, to friendship, or to what is called ‘interest;’ write it on your heart that you will depend solely on your own merit and your own exertion. He who lives upon anything but his own labor is incessantly surrounded by rivals; his grand resource is that servility in which he is always liable to be surpassed. He is in daily danger of being outbidden; his very bread depends upon caprice, and he lives in a state of uncertainty and never-ceasing fear. Far from me be the thought that any youth who shall read this page would not perish rather than submit to live in a state like this! Such a state is fit only for the refuse of nature, the halt, the half-blind, the unhappy creatures whom Nature has marked out for degradation.” — *Cobbett*.

“The great misfortune of the present day is that every one is, in his own estimate, raised above his real state of life; every one seems to think himself entitled, if not to title and great estate, at least to live without work.” — *Cobbett*.

“In spite of every art we may use to avoid labor the taxes will, after all, maintain only so many idlers. We cannot all be knights and gentlemen; there must be a large part of us, after all, to make and mend clothes and houses and carry on trade and commerce, and in spite of all that we can do the far greater part of us must commonly work at something, for unless we can get at some of the taxes we fall under the sentence of Holy Writ, ‘He who will not work shall not eat.’” — *Cobbett*.

“So strong is the propensity to be thought ‘gentlemen,’ so general is this really fraudulent desire among the youth of this speculating nation, that thousands upon

thousands of them are at this moment in a state of half starvation, not so much because they are too lazy to earn their bread as because they are too proud; and what are the consequences? Such a youth remains or becomes a burden to his parents, of whom he ought to be the comfort if not the support. Always aspiring to something higher than he can reach, his life is a life of disappointment and shame. His lot is a thousand times worse than that of the common laboring pauper." — *Cobbett* (England).

"He who has his bread to earn, or who means to be worthy of respect on account of his labors, has no business with morning-gown or slippers. In short, be your business or calling what it may, dress at once for the day; and learn to do it as quickly as possible." — *Cobbett*.

"By the workingman, we do not mean merely the man who labors with his muscles and sinews. A horse can do this. But he is preëminently the workingman who works with his brain also and whose whole physical system is under the influence of his higher faculties. The man who paints a picture, who writes a book, who makes a law, who creates a poem, is a workingman of the highest order; not so necessary to the physical sustenance of the community as the ploughman or shepherd, but not less important in providing for society its highest intellectual nourishment." — *Smiles*.

"It is the savings of the world that have made the civilization of the world. Savings are the result of labor; and it is only when laborers begin to save that the results of civilization accumulate. We have said that thrift begins with civilization: we might almost have said that thrift produces civilization. Thrift



produces capital, and capital is the conserved result of labor. The capitalist is merely the man who does not spend all that he has earned by work." — *Smiles*.

"Thrift is not a natural instinct. It is an acquired principle of conduct. It involves self-denial — the denial of present enjoyment for future good — the subordination of animal appetite to reason, forethought, and prudence. It works for to-day, but also provides for to-morrow. It invests the capital it has saved and makes provision for the future." — *Smiles*.

"A large proportion of men do not provide for the future. They do not remember the past. They think only of the present. They preserve nothing. They spend all that they earn. They do not provide for themselves; they do not provide for their families. They may make high wages, but eat and drink the whole of what they earn. Such people are constantly poor and hanging on the verge of destitution." — *Smiles*.

"Most men work for the present, a few for the future. The wise work for both — for the future in the present and for the present in the future." — *Guesses at Truth*.

"The secret of all success is to know how to deny yourself. If you once learn to get the whiphand of yourself, that is the best education. Prove to me that you can control yourself and I will say you are an educated man; and without this all other education is good for next to nothing." — *Mrs. Oliphant*.

"Not what I have, but what I do, is my kingdom." — *Carlyle*.

"Productive industry is the only capital which enriches a people and spreads national prosperity and



well being. 'In all labor there is profit,' says Solomon. What is the science of political economy but a dull sermon on this text?" — *Samuel Laing*.

"God provides the good things of the world to serve the needs of nature by the labors of the ploughman, the skill and pains of the artisan, and the ventures and traffic of the merchant. The idle person is like one that is dead: he only lives to spend his time and eat the fruits of the earth; like a vermin or a wolf, when the time comes they die and perish, and in the meantime do no good." — *Jeremy Taylor*.

"For the structure that we raise  
Time is with materials filled;  
Our to-days and yesterdays  
Are the blocks with which we build."

*Longfellow.*

"Competence and comfort lie within reach of most people were they to take the adequate means to secure and enjoy them. Men who are paid good wages might also become capitalists and take their fair share in the improvement and well being of the world. But it is only by the exercise of labor, energy, honesty, and thrift that they can advance their own position or that of their class." — *Smiles*.

"There are few persons who cannot contrive to save three shillings weekly. In twenty years, three shillings saved weekly would amount to two hundred and forty pounds. And in ten years more, by addition of interest, to four hundred and twenty pounds. Some may say that they cannot save nearly so much. Well, begin with two shillings, one shilling, or even a sixpence. Begin somewhere, but at all events, make a beginning.

It is the habit of saving, and denying one's self, that needs to be formed." — *Smiles*.

"Men must prepare in youth and middle age the means for enjoying old age pleasantly and happily. There can be nothing more distressing than to see an old man, who has spent the greater part of his life in well-paid labor, reduced to the necessity of begging for bread, and relying entirely upon the commiseration of his neighbors or the bounty of strangers. Such a consideration should inspire men in early life with a determination to work and to save for the benefit of themselves and their families in later years." — *Smiles*.

"The young man spends, or desires to spend, quite as liberally and often much more liberally than his father, who is about to end his career. He begins life where his father left off. He spends more than his father did at his age, and soon finds himself up to his ears in debt. To satisfy his incessant wants he resorts to unscrupulous means and to illicit gains. He tries to make money rapidly; he speculates, overtrades, and is completely wound up. And thus he obtains experience; but it is the result, not of well doing, but of ill doing." — *Smiles*.

"To win Dame Fortune's courtly smile,  
Assiduous wait upon her;  
And gather gear by every wile  
That's justified by honor;  
Not for to put it in a hedge,  
Nor for a train attendant,  
But for the glorious privilege  
Of being independent."

*Robert Burns.*

TO MAKE TWENTY THOUSAND DOLLARS IN  
FOUR YEARS.

“Contented wi’ little, and cantie wi’ mair.” — *Burns*.

To make twenty thousand dollars in four years, five thousand dollars a year, in these days of keen competition in every business, is not easy. Still harder is it to find at the end of the four years that your capital is so invested that you cannot lose it; that no misfortune short of sickness or death can take it away from you. But it can be done. You can do it.

Twenty thousand dollars was once a comfortable fortune in this country. When money was less plenty we paid more for the use of it—for money, like other commodities, has its price in the market. A generation ago business men engaged in large enterprises were glad to pay ten per cent for the use of money. That meant an income of two thousand dollars a year for the man who had twenty thousand dollars to lend. It was in such times as those that Abraham Lincoln declared that no man ought to want more than twenty thousand dollars.

But times and circumstances have changed. Money is now very plenty, and as a natural consequence it is cheap. Millions of people have money to lend, and the wise ones look more to the safety of the investment than to the interest it pays. The government, being considered absolutely safe, borrows immense sums for three per cent or less. In any safe private enterprise it is difficult to get more than five per cent. Consequently twenty thousand dollars produces only half as large an

income as it produced thirty or forty years ago. If Mr. Lincoln were to make his estimate to-day, with the same income in view, he would say forty thousand dollars instead of twenty.

At the present, twenty thousand dollars, wisely invested, means an income of a thousand dollars a year. And a very safe and comfortable thing for any family is an assured income of a thousand dollars a year. It is not princely; it will not support coaches and butlers and fine establishments; but it insures a roof over your head, and clothes, and beef and bread and independence. Many a man who spends twenty times that much every year would feel far safer if he were absolutely sure of a thousand dollars a year for the remainder of his life. A young man with a thousand a year may begin to think of marrying.

We estimate capital by what it produces, or can be made to produce. Twenty thousand dollars produces a thousand dollars a year. Any other form of capital, any special knowledge, skill, information, that can be made to produce a thousand dollars a year, is equally worth twenty thousand dollars. If you can turn your hand to anything that will pay you a thousand dollars a year, your capital in brain and sinew is worth twenty thousand dollars.

Nothing will so surely and so safely put you into the possession of this capital and this income as learning a good trade. A thousand dollars a year is twenty dollars a week in round numbers, and a skilled workman can always make it. Not the half-and-half man, who shifts about from one shop to another, the time-server, who watches the clock for quitting-time and begins on Monday morning to sigh for Saturday night to come. But the good workman, who knows his trade and loves and

respects it. Investments in government bonds are not surer than his income. When bad times come it is not this man who is discharged, but the shirker. When there is not work in one place there is work in another.

There is no such financial safety in this world as in the thorough knowledge of a good trade, which may be learned in four years. Not only for the poor, but for the rich also. "Riches certainly make themselves wings," says the Bible. The millionaire of to-day may be the beggar of to-morrow. Your father may not always be able to provide for you. In later years your own business, your own profession, may prove a failure. With the knowledge of a good trade you have always something to fall back upon. No financial crisis, no unfortunate speculation, takes away the knowledge of a trade or its earning power. In time of misfortune the helpless man is crowded to the wall; the man with a trade smiles and goes to work.

No young man can be so well situated that this matter has no importance for him. The sons of many of our multi-millionaires are learning trades for these and other good reasons. They are gaining something that cannot be taken away from them. If they are to step into their fathers' places, how much better it is for them to understand the business from its very foundation!

If you are eventually to become a successful man yourself, a wealthy man, the knowledge of a trade will be no disadvantage; if fate decrees otherwise, your trade may be the salvation of yourself and your family. In a few years you will probably have others to provide for. You must think of them from the beginning. What a picture of misery is a middle-aged man of family, a man accustomed to wealth and luxury, who is suddenly

thrown upon his own resources, with no knowledge of any trade or business except the business that has stranded him on the rocks! He is helpless —

“A poor, weak, palsy-stricken, churchyard thing.”

Do you think there is anything demeaning in the knowledge of a mechanical trade? On the contrary, it is something that you will always be proud of. I do not know of one successful man who is ashamed of the trade he learned in his youth; but I know a large number who are proud of their mechanical knowledge.

A short time ago I saw a fine example of this in a West Indian city. The leading newspaper office in the city had bought a cylinder printing-press, and when it arrived in the steamer, and was unboxed in the office, there was not a man on the island who could put it together. The printers there were familiar with the old-fashioned hand press, but knew nothing about power presses. It was useless as it lay in pieces, and there seemed to be no remedy but to send a thousand miles to New York for a pressman, at a cost of several hundred dollars.

But an American gentleman who was spending the winter in the fashionable hotel with his family heard of it, and offered to put the press together.

“You?” exclaimed the editor of the paper. “Do you know anything about presses?”

“I have been a pressman,” the American replied; and when he ordered out his carriage and drove down to the printing-office I went with him.

Off came his coat; up went his sleeves. In five minutes he was well daubed with ink and grease, greatly to the surprise of the colored printers, — for it is not

customary in those countries for white men to do any manual labor.

They offered advice and assistance, but only at the beginning. They soon saw that he knew that press as well as the man who made it. There was not a bolt or a screw but he knew the exact use of. It was no trouble for him to raise the heavy cylinder, because he knew just how to do it. He had been taught thirty years before, and had not forgotten.

In two or three hours the press was set up and ready for work. Do you think that American was ashamed of his mechanical knowledge? ashamed that he was able to do what no other man on those islands could do? If he had been a poor man he could easily have earned two hundred dollars in those two hours; but being wealthy he laughed at the idea of pay. He did it because he still loved the work, and because he knew that he could do it well.

I have spoken of a "good" trade. There are good trades and poor ones — and even the good ones may be badly learned. By a good trade I mean one that is reasonably sure to give constant employment at fair wages. Those trades that minister to the necessities of life are good; those that produce only luxuries are not so good, in general terms. In hard times we dispense with the luxuries, but we cannot dispense with the necessities. We must have clothes, and newspapers, and wagons, and flour, and a hundred other staples, at all times; but when money is scarce we can do without jewelry and furs and other luxuries. Further than this, a trade that can be learned easily and quickly is not "good," because it is sure to be overcrowded.

Nine trades out of ten can be better learned in the country than in the large cities. In the country the



establishments are smaller, there are fewer hands, and the apprentice gains a knowledge of all parts of the business. In the larger shops of the cities, with their hundreds of hands, the apprentice learns only one branch of the trade. The printer's trade furnishes a good example of this. The beginner in a country printing-office learns to set type, to distribute, to wash rollers, to take proofs, to feed the press, to make up forms, to read proofs, to cut paper, to operate the engine. In four years he knows every branch of the trade. He is a complete printer. In the larger offices of the cities he learns only one department. If he is in the press room he knows nothing whatever about handling type. If he is in the composing room he never even sees the presses. At the end he is only half a printer.

This mention of printing suggests those trades that lead naturally on to other things. There are many of them, but chief among them is the printer's trade. The printer boy becomes a compositor, the compositor becomes a reporter, the reporter becomes an editor, the editor becomes an author. The one leads on to the other — not invariably, but very often. How many of the prominent writers of the present day have been editors, and before that were reporters, and before that were printers? Scores of them, at least. And in every step of their careers they find their knowledge of printing of great advantage to them. I have known in the "city room" of one of the great New York newspapers, the reporters' room, so many reporters who had been printers that in case of a strike they could have set all the type for the paper themselves. They would not have done it, because being printers themselves they would have sympathized with the other printers; but they could have done it.



A reporter who is not a printer is at a great disadvantage. So is an editor. So is an author. If he cannot see with his mind's eye "how it will look in print" he is all at sea. The printer-writer knows just how it will look in type, how much space it will occupy, and what mechanical effects he can use to produce the desired results. He knows what he is doing.

This is the surest and best way that I can suggest to you for making twenty thousand dollars in four years. It is the way that you are least likely to regret. No man ever regrets his knowledge of a good trade. It is an investment, a safeguard, a blessing. No matter what you expect to be eventually, — a clergyman, a physician, a business man, perhaps a millionaire, — the trade is no incumbrance. There is training in the learning it, security in the knowledge when acquired.

"Come hither, ye that press your beds of down,  
And sleep not : see him sweating o'er his bread  
Before he eats it. 'Tis the primal curse,  
But soften'd into Mercy ; made the pledge  
Of cheerful Days, and Nights without a groan."

*Cowper.*

“HE THAT HATH A TRADE HATH AN  
ESTATE.”

“BLESSED is he that has found his work ! let him ask no other blessedness.” — *Carlyle*.

“The happiest man is he who, being above the troubles which money brings, has his hands the fullest of work.” — *Anthony Trollope*.

“Blessed is that man who knows his own distaff, and has found his own spindle !” — *J. G. Holland*.

“Let a man choose what condition he will, and let him accumulate around him all the goods and all the gratifications seemingly calculated to make him happy in it — if that man is left at any time without occupation or amusement, and reflects on what he is, the meagre, languid felicity of his present lot will not bear him up. He will turn necessarily to gloomy anticipations of the future ; and except, therefore, his occupation calls him out of himself, he is inevitably wretched.” — *Pascal*.

“The crowning fortune of a man is to be born to some pursuit which finds him employment and happiness, whether it be to make baskets, or broad-swords, or canals, or statues, or songs.” — *Emerson*.

“To business that we love we rise betimes, and go to ’t with delight.” — *Shakespeare*.

“Occupied people are not unhappy people.” — *Dewey*.

“The market is always overstocked with middling

work of all sorts, while first-rate work in all departments of human effort is always so scarce as to demand high prices. Every newspaper editor, every merchant, every manufacturer, every employer of any sort, indeed, is constantly overwhelmed with applications from people who are capable of doing tolerably good work, while every employer knows that when he has need of a man capable of really first-rate performance he must search diligently for him, and pay him a high price when he is found. Now the men who become capable of this sort of work are those, and those only, who have devoted themselves to the business for which they are by nature and education especially fitted." — *Eggleston*.

"It is especially desirable that you should find your level. A large percentage of life's failures, and many of life's miseries, are due to people's persistent attempts to do things for which they are not fitted. A blunder of this kind at the outset is almost sure to embarrass one through life. One does not like to confess such a blunder; it is mortifying to give up what one has undertaken to do on the ground that he is not qualified for the business, and there are hundreds of people who by dint of favors shown, and by the unwise assistance of friends, manage to waste a life in the doing of poor work for poor pay, while they might be doing excellent work of some other sort, and living a life of personal independence and manliness." — *Eggleston*.

"The trouble comes mostly from a mistaken notion of respectability. There is, even in our democratic country, a feeling that certain callings are in some way more respectable than others, and unmanly as this feeling is, it misleads thousands to their ruin. In so far as it refers to the learned professions, we may readily understand the prejudice, as the successful pursuit of these of neces-

sity implies the possession of both intellectual strength and culture; but prejudice does not confine itself to drawing the line between those professions which presuppose culture and those which do not. The idea seems a not uncommon one that it is in some way more respectable to sell goods over a counter than to follow a mechanical pursuit, or, in general terms, that those vocations which may be followed in broadcloth are more dignified than those which may not. There must be salesmen in our dry-goods stores, of course, but the demand is always greater for skilled than for unskilled labor, and the supply is nearly always in an inverse ratio. The mechanic has a technical culture—a skill gained by years of patient study—which the other has not, and the possession of such a culture is a just ground for honest pride, as well as a sure guarantee against poverty. In short, while all honest work is honorable and dignified, the skill of the mechanic, which is in itself culture, is a worthy subject of pride, and other things being equal, the mechanic is the superior in fact to the unskilled workman. He can do a higher kind of work, and he is a more thoroughly educated man in his fustian than is his fellow in broadcloth, who with no greater intellectual or educational endowments, lacks his technical knowledge.”—*Eggleston.*

“It is not an erroneous notion of respectability alone which leads so many young men who ought to know a trade to clerkships and salesmen’s positions instead. There is a prevalent belief among young men that there are more and better chances for advancement in commerce than in mechanical pursuits. They mistake their own vague imaginings for well-grounded hopes, and it is safe to say that half the young men who seek city clerkships look confidently for the coming of the time when they shall be merchants on their own accounts. They

ponder the stories of men who beginning as office boys, have become chief clerks and junior partners and ultimately even seniors in great houses, until these come to represent in their eyes the ordinary and probable course of affairs. They forget that success of this kind can come to but one man out of many thousands, and that when it does come it is the result of something more than mere chance." — *Eggleston*.

"To a young man with capital in reserve, or with its equivalent in influence, or still better with extraordinary capacity, a clerkship may offer a reasonable prospect of ultimate advancement; but without one or another of these conditions the chances are more than a thousand to one that he will never succeed in making more than a bare support for himself, while the overcrowded condition of the ranks in which he stands makes his position a precarious one always. The mechanic, on the other hand, brings a definite skill to bear on the problem of money-making. Only those who are similarly skilled can compete with him for employment. His skill is a positive capital and his work is always productive. There are few brilliant opportunities open to him, though there are in reality quite as many as there are to the salesman or clerk; but he knows definitely how to do something that other men must have done, and which they cannot do for themselves, and if he be sober and industrious he is always sure of a support, and with a wise economy he may almost certainly accumulate a comfortable surplus in the end." — *Eggleston*.

"In general terms it is important in every case that the worker shall know how to do some kind of work thoroughly well. In skill only is there any real safety from want. Even a position of wealth is not half so

sure a guarantee against poverty, and no man who is without a thorough knowledge of some business is ever safe. So long as this was a new country, with undeveloped resources on every hand, there were opportunities, which no longer exist, for the easy and rapid accumulation of wealth. Almost any man of ordinarily good capacity might make money without any definite skill, and while that was the case knowledge of some business was far less important than it now is as a preparation for life. When every man who could turn his unskilled hands to any useful thing was sure to find work and wages, and when every purchase of a piece of land included the possible purchase of a coming city, there was less need than now for a technical education. But the era of easy money-getting is rapidly passing away.” — *Eggleston*.

“Self-reliance and self-denial will teach a man to drink out of his own cistern, and eat his own sweetbread, and to learn and labor thoroughly to get his own living, and careful to save and to expend the good things committed to his trust.” — *Lord Bacon*.

“Live, therefore, to labor; if thou shouldst not want it for food thou mayst for physic. It is wholesome for the body and good for the mind. It prevents the fruit of idleness.” — *Wm. Penn*.

“A parent who does not teach his child a trade teaches him to be a thief.” — *Brahminical Scriptures*.

“Those that say that ‘it cannot be done’ are probably not aware that many of the working-classes are in receipt of incomes considerably larger than those of professional men. One of the largest iron-masters recently published in the newspapers the names of certain colliers

in his employment who were receiving from four to five pounds a week — the equal to an annual income of from two hundred to two hundred and fifty pounds a year." — *Smiles*.

(The large iron-master referred to above by Mr. Smiles was Richard Fothergill, M.P. In a subsequent letter on the same subject he says: "No doubt such earnings seem large to clerks and educated men who after receiving a costly education have often to struggle hard for bread; but they are nevertheless the ordinary earnings of steady manual labor, and I have the pleasure of adding that while all steady and well-disposed colliers in good health could make equally good wages, many hundreds in South Wales are constantly doing as much or more: witness a steady collier in my employment, with his two sons living at home, whose monthly pay ticket has averaged thirty pounds for the past twelve months.")

"Goldsmith spoke of a country curate as passing rich with forty pounds a year. The incomes of curates have certainly increased since the time when Goldsmith wrote, but nothing like the incomes of skilled and unskilled workmen. If curates merely worked for money they would certainly change their vocation and become colliers or iron-workers." — *Smiles*.

"An employer at Blackbourne used to say, 'I cannot afford lamb, salmon, young ducks, and green peas, new potatoes, strawberries, and such like, until after my hands have been consuming these delicacies of the season for some three or four weeks.'" — *Smiles*.

"Brown, the Oxford shoemaker, was of the opinion that a good mechanic is the most independent man in the world. He has always a market for his skill, and if he be ordinarily diligent, sober, and intelligent he may be



useful, healthy, and happy. With a thrifty use of his means he may, if he earns from thirty to forty shillings a week, dress well, live well, and educate his children creditably." — *Smiles*.

"Let me state, for it seems very much the fashion to draw dolorous pictures of the condition of the laboring classes, that from the close of the first year in which I worked as a journeyman until I took final leave of the mallet and chisel I never knew what it was to want a shilling; that my two uncles, my grandfather, and the mason with whom I served my apprenticeship — all workingmen — had had a similar experience; and it was the experience of my father also. I cannot doubt that deserving mechanics may in exceptional cases be exposed to want, but I can as little doubt that the cases are exceptional, and that much of the suffering of the class is a consequence either of improvidence on the part of the competently skilled, or of a course of trifling during the term of apprenticeship, quite as common as trifling at school, that always lands those who indulge in it in the hapless position of the inferior workman." — *Hugh Miller*.

"The force of his own merit makes his way." — *Shakespeare*.

"Examples demonstrate the possibility of success." — *Colton*.

"If any one intends to improve his condition he must earn all he can, spend as little as he can, and make what he does spend bring him and his family all the real enjoyment he can. The first saving which the workingman makes whatever is the first step; and, because it is the first, the most important step toward true independence.



Now, independence is as practicable in the case of the industrious and economic, though originally poor workman as in that of the tradesman — and is as great and estimable a blessing. The same process must be attended to — that is, the entire expenditure being kept below the whole income, all contingent claims being carefully considered and provided for, and the surplus held sacred to be employed for those purposes, and those only, which duty or conscience may point out as important or desirable. This requires a course of laborious exertion, a strict economy, a little foresight, and possibly some privation, but this is only what is common to all desirable objects. And inasmuch as I know what it is to labor with the hands, long hours and for small wages, as well as any workman, and to practise self-denial withal, I am emboldened to declare from experience that the gain of independence, or rather self-dependence, for which I plead, is worth infinitely more than the cost of its attainment, and moreover, to attain it in a greater or less degree, according to circumstances, is in the power of by far the greater number of skilled workmen engaged in our manufactures." — *Wm. Felton, Mayor of Nottingham.*

"If a man does not know how to save his pennies or his pounds his nose will always be kept to the grindstone. Want may come upon him any day like 'an armed man.' Careful saving acts like magic; once begun it grows into a habit. It gives a man a feeling of satisfaction, of strength, of security. The pennies that he has put aside in his savings bank give him an assurance of comfort in sickness, and of rest when old. The man who saves has something to forefend him against want, while the man who saves not has nothing between him and bitter, biting poverty." — *Smiles.*

"Care preserves what industry gains. He who attends

to his business diligently but not carefully throws away with one hand what he gathers with the other.” — *Colton*.

“The acquisition of property, the accumulation of capital, is already in the power of the better-paid working-classes, and legislation has but few further facilities to give or obstacles to remove.” — *W. R. Greg*.

“The workman in good employment is not liable to lose by bad debts; he has no obsolete machinery from time to time left useless on his hands; and he has no anxiety about finding a market for his goods, nor fears respecting fluctuations in prices in the raw materials. These are important advantages in his favor, which he does not ordinarily take into account. It is true he suffers if trade is bad, but he earns high wages if it is good: he can then save money if he chooses to do so. He may be said to participate in the adversity or prosperity of his firm, but without incurring any of the liabilities of the partnership.” — *Smiles*.

Here is Carlyle’s curious description of the great English manufacturer: “Plugson of St. Dolly Undershot, buccaneer-like, says to his men: ‘Noble spinners, this is the hundred thousand we have gained, wherein I mean to dwell and plant my vineyards. The hundred thousand is mine; the three and six daily was yours. Adieu, noble spinners! Drink my health with this groat which I give you over and above!’”

“My ventures are not in one bottom trusted,  
Nor to one place; nor is my whole estate  
Upon the fortunes of this present year.”

*Shakespeare.*

“The roughest road often leads to the smoothest fortune.” — *Franklin*.

"Respectability is all very well for folks who can have it for ready money; but to be obliged to run into debt for it is enough to break the heart of an angel." — *Douglas Jerrold*.

"The man who has no occupation is in a bad plight; if he is poor, want is ever and anon pinching him; if he is rich, ennui is a more relentless tormentor than want." — *L. C. Judson*.

"He who has a trade may travel through the world." — *R. Zouch*.

"He who cannot speak well of his trade does not understand it." — *Vallancey*.

"It is well to add a trade to your studies if you would remain free from sin." — *The Talmud*.

"He that hath a trade hath an estate; and he that hath a calling hath a place of profit and honor: A ploughman on his legs is higher than a gentleman on his knees." — *Benjamin Franklin*.

"Every Egyptian was commanded by law annually to declare by what means he maintained himself, and if he omitted to do it or gave no satisfactory account of his way of living he was punishable by death. This law Solon brought to Egypt from Athens, where it was most inviolably observed." — *Herodotus*.

"Be always employed about some rational thing: let the devil find thee not idle." — *Jerome*.

## A PROFESSIONAL CAREER.

"A little neglect may breed mischief: for want of a nail the shoe was lost; for want of a shoe the horse was lost; and for want of a horse the rider was lost."—*Benjamin Franklin*.

To advocate the learning of a trade by almost every young man is not to argue against a professional or business career. The two go hand in hand : trade and profession, or trade and business. One is a safeguard for the other.

It is a great mistake to suppose that a professional life is an easy life. It involves a vast amount of the hardest kind of work. Some professional men make it easy, but they are never the leading men in their professions. They are the drones. Such men often have a sufficient private income to live upon, and that hinders them; it prevents them from doing their very best, as they would otherwise be compelled to do. The successful men in all the professions work far harder than most mechanics.

You step into a court-room and see a great criminal lawyer working for the acquittal of his client. He examines the witnesses, makes objections here and there, and at the close makes a powerful address to the jury. It looks very easy, and you hear that he receives so many hundred dollars for conducting the case. But what you see is only the public conclusion of long-continued, wearing labor in private. You do not know how many witnesses he has examined in his office, two-thirds of them perhaps only to be rejected. How he has sifted the evidence beforehand, and laid out his case, and pored

over statutes, and emphasized the points that are to make an impression upon the jury. And the argument that flows so fluently from his tongue may have cost him many a day and night of labor. Those telling points were all thought out beforehand.

It is so in every profession. We see the finished work without considering the labor of preparing it. The clergyman preaches his sermon in thirty minutes, but he was three days writing it. The physician feels the pulse and asks a few questions and writes his prescription and it looks very easy, but if he is a successful man he has hardly a minute he can call his own. If you go with a surgeon on his way to perform a dangerous operation he hardly hears what you are saying to him. He is thinking of his case. Other men's faults may be corrected, but not his. A slip of the knife, the neglect of the slightest detail, can never be atoned for. The book that you read in the spare moments of three or four days has occupied the author for as many months, perhaps as many years.

Some young men have such a natural predilection for a certain profession, a predilection manifesting itself even in early childhood, that there is never any question what their occupation shall be. Some physicians are "made by nature," some preachers, some lawyers, if we may trust the common belief on the subject. But nature makes only the crude material. Like ore, it must be well hammered out and polished before it is available. Nature never gives us more than the early inclination toward any calling. Hard work does the rest.

These early inclinations are good in their way, but they are not always to be trusted. Many a "born doctor" has turned out a very poor one. Many a young man, on the contrary, who in his youth showed no decided

preference for any particular calling, has chosen the one that circumstances presented, and has gone to the top of it.

Circumstances, surroundings, are never to be looked upon lightly. It is by understanding them, by making the most of them, that we win success according to our merit. With all the merit in the world a man may fail to rise if he has not the knack of making the most of his circumstances and surroundings. You hear sometimes of a man who "would have come to the top under any circumstances." That cannot be disproved, because we cannot see any one man under all circumstances; but it may be doubted. General Grant, we all proudly admit, had merit, skill, military training. But had he not also had the ability to make the most of existing circumstances we should never have heard of him. The Civil war was not fought for the express purpose of making Grant general and President. If it had come twenty years earlier or twenty years later his ability would have been as great, but it could not have brought him to the front in the same direction. It is customary, but it is unwise, to put too much dependence upon ability, too little upon circumstance.

"There is a tide in the affairs of men,  
Which, taken at the flood, leads on to fortune:  
Omitted, all the voyage of their life  
Is bound in shallows and in miseries."

Even Shakespeare could not have said a wiser thing than that to a young man on the eve of choosing a profession. "We must take the current when it serves, or lose our ventures." The tide is sure to come; the point is to catch it at the flood. We cannot make our own circumstances; especially in the beginning, we must take them

as they are and make the most of them. Not financial circumstances merely ; all our surroundings.

Youthful inclination toward a particular calling is sometimes a good index ; but it cannot be looked into too closely, from every possible side. Many a bad blunder has been made by mistaking youthful fancy for divine calling. Perhaps you were found one day in childhood, playing church, preaching a childish sermon to your brothers and sisters. It was immediately said of you, "Ah, he is going to be a preacher!" and with that incentive you preached all the more, till you came to believe that you really were designed for a clergyman. If you "played doctor" some day after the physician's visit, felt pulses, and put up little sugar powders, the fiat may have gone forth that you were "cut out for a doctor." Such things grow in families. After your first ride in an electric car your favorite play was twisting imaginary brakes, and your greatest hero was the motorman. You are not willing now to accept that as an indication.

Because you are fond of listening to trials in the courts, do not regard that as an indication that you have a natural leaning toward the law. In every large city there are hundreds of people who rarely miss a day in court. When they are shut out of one they go to another. Do you think they are all people who should have been lawyers, but have missed their vocation ? Indeed, no. They have nothing better to do, and the trials amuse them. You might even have a morbid taste for assisting a surgeon at operations, without having any special aptitude for the profession. You know some people who have a morbid liking for attending funerals. Do you think nature designed them all for undertakers ? After the circus was in town half the boys fell to practising on horizontal bars. Did that indicate that they were to be



circus performers ? A boyish fancy for things that you have seen only the bright side of must not be mistaken for a mandate of divine providence.

The cases in which nature evidently has designed a young man for a particular calling are comparatively few. Undoubtedly there are such cases. In every century we may look for two or three great statesmen, great generals, great writers ; hardly more. And nature's providings of special men for special places are not more frequent. Usually circumstances have more to do with it than nature. A boy with what we call a natural taste for art covers all his spare paper with pencil drawings. An older boy with no natural taste for it, but who has been well instructed, makes much better drawings. The natural artist might have within him the germs of a great artist, and yet circumstances and good sense might lead him in a different direction, much to his advantage.

What do I mean by circumstances ? I can explain it best by an illustration. Your father, let us imagine, is a prosperous physician. He has spent nearly all his working life in the one place, and has built up a good and profitable practice. The people have confidence in him. When he retires they will have confidence in the successor he recommends. You, having been all your life in his house, are familiar with a physician's duties. The unpleasant phases of the life have made more impression upon you than the pleasant ones. Of every other calling you see only the outside, the more pleasant side. You know how often your father has been called from bed on stormy nights ; what long, hard drives have been necessary ; how hard it has been to make collections. You have heard him say, as every other man in every other calling has said, that his is the hardest and most unprofitable work in the world.



Knowing thus how many unpleasant sides there are to a physician's life, and knowing nothing about the unpleasant phases of any other calling, you have gradually come to believe that you do not care to be a physician. It is a humdrum calling, full of hard work, and poorly rewarded. You are not willing to be tied down for life to the little country town. You prefer to go to one of the large cities and become a great lawyer. The great lawyer's life is spent upon a bed of roses. He has nothing to do but make telling speeches and receive marvelous fees.

Or perhaps your father is not a physician. It may be your uncle, or some intimate friend of your family who is willing to give you an opportunity. It may be nothing nearer than your father's lawyer, who would take you into his office and make an opening for you. It may, in short, be any person, or any circumstance, through whom, or through which, you would have a better chance for a good start in life than in any other place. But no; you believe yourself to be "called" in some other direction, and you pass by the doors that stand open for you and go on to one that may prove to be locked tight. You should think not twice, but a hundred times, before you do it.

That is what I mean by circumstance—the circumstance that makes a promising chance for you at the beginning, and toward which the finger of common sense points for you, and against which you have only the indistinct notion that you are "destined" for something else. No matter what profession you go into, you will find it overcrowded, and your chances of success will be better with a good start than without it. A determination to "fight your own way" is a laudable purpose, but not when it leads you to oppose the dictates of common

sense. There may be that within you which leads you irresistibly into unbroken paths; such things have happened; but they do not happen often. It is more likely to be a mere fancy of your own breeding. Fighting your own way requires a certain amount of mental and moral force, and the force required to make an opening for yourself might be used to greater advantage if you found the way already opened. Given two young men of equal moral and mental calibre, and the one with the better start has the better chance of success.

No man can say to you positively that because your father is a physician you ought to study medicine; or your uncle a lawyer, you should study law. The most that can be said is that where your best apparent chance lies, there you should go, unless overwhelming reasons carry you in a different direction. Not boyish fancies, but good sound reasons.

The church is an exception. For the ministry you must indeed have a divine calling if you would not go into it under false pretences. But as that subject is to be considered separately a few pages further on, I shall here only call your attention to the pointed words of St. Matthew, which apply to all the other professions as well as to the ministry:

“For many are called, but few are chosen.”

THE TIDE IN THE AFFAIRS OF MEN.

"FEW things compare with a retentive, accurate memory. It is in youth that this faculty is formed and trained, and one of the best methods of strengthening it is the habit of learning by heart passages from authors in prose and verse that we may admire. When you get into professional and active life, you will come home tired, with very little inclination to study; hence the importance of doing that work now."—*Lord Chief-Justice Coleridge.*

"Desultory reading is waste of life."—*Rufus Choate.*

"It were better to be ignorant of a great number of things to avoid the calamity of being ignorant of everything."—*Sidney Smith.*

"Dost thou love life? Then do not squander time, for that is the stuff life is made of."—*Benjamin Franklin.*

"Many other students read more than I did, but so much as I read I made my own. When a half hour or an hour at most elapsed, I closed my book and thought on what I had read. If there was anything peculiarly interesting or striking in the passage I endeavored to recall it and to lay it up in my memory, and commonly could effect my object."—*Daniel Webster.*

"Devote six hours a day to study; four to study proper, and two to lucubration and legal talk. This is amply sufficient. The mind burdened loses its memory and originality and alacrity."—*Rufus Choate.*

"I early subjected my mind to such a rigid course of discipline, and have persisted without faltering, until I really acquired a perfect control over it. I can now confine it to any subject as long as I please without wandering for a moment. It has been my uniform habit when out alone for a walk or ride, to select a subject for reflection, and never suffer my attention to wander from it until I am satisfied with its examination." — *John C. Calhoun.*

"Here is John Marshall, whose mind seems to be little less than a mountain of barren and stupendous rocks; an inexhaustible quarry from which he draws his materials and builds his fabrics, rude and Gothic, but of such strength that neither time nor strength can beat them down; a fellow who would not turn off a single step from the right line of his argument though a Paradise would rise to tempt him." — *Wm. Wirt.*

"Before commencing to read a book, always peruse carefully the preface and table of contents. By this method you will secure an accurate idea of the purpose and plan of the author, which is always a great help; and you will also secure a preview of the entire work, which is an aid to the complete comprehension of the subject-matter." — *Geo. A. Macdonald.*

"The practice of reviewing will have an incredible effect in assisting your progress; but it must be a real and thorough review; that is, it must be again and again repeated. What I choose is this: that every day the task of the preceding day should be reviewed; at the end of every week, the task of the week; at the end of every month, the studies of the month; in addition to which the whole course should be gone over again and again during the vacation." — *Wytttenbach.*

Lord Chesterfield had been requested to promote the adoption by the British Parliament of the Gregorian calendar for England. "And then," he says, "my difficulty began. I was to bring in this bill, which was necessarily composed of law jargon and astronomical calculations, to both of which I am an utter stranger. However, it was absolutely necessary to make the House of Lords think that I knew something of the matter; and I also had to make them believe that they knew something of it themselves, which they did not. For my own part I could just as well have talked Celtic or Slavonian to them as astronomy, and they could have understood me just as well; so I resolved to do better than speak to the purpose, and to please instead of informing them. I was particularly attentive to the choice of my words; to the harmony and roundings of my periods, to my elocution and to my action. They thought I was informed because I pleased them; and many of them said that I had made the whole very clear to them, when I did not even attempt it. Lord Macclesfield, who had the greatest share in framing the bill and who is one of the greatest mathematicians in Europe, spoke afterward, with infinite knowledge and all the clearness that so intricate a matter would admit of; but as his words, his periods, and his utterances were not nearly so good as mine, the preference was most unanimously, though most unjustly, given to me."

This story of Judge Parsons, illustrating the power of simplicity in diction and oratorical style, is told by George A. Macdonald in his book entitled "How Successful Lawyers were Educated." "When Parsons was a young man he was retained to argue an important case in a Maine court. He was unknown to the people and even to the lawyers. I had heard of him as a rising

man, and was drawn to the court-room by curiosity to learn the secret of his power. Parsons began his plea by putting one foot in the chair. Then leaning one elbow on his knee, he talked to the jury as a man would tell a story at his fireside. Pretty soon I thought I understood him. He was winding the jury around his fingers. He made no show. He treated the case as if it were a very simple affair, but of which the conclusion was obvious and inevitable, and he did not talk long. He got a verdict at once; and after the jury was dismissed, one of them whom I happened to know came to me and said, 'Who is this man Parsons? He is not much of a lawyer and does n't look or talk as if he ever would be one; but he seems to be a good sort of a man.'"

"The ignorance of the Bible among students in our schools and colleges furnishes a curious illustration of the inadequacy of our educational machine to meet the requirements of life. Wholly apart from its religious or from its ethical value, the Bible is the one book which no intelligent person who wishes to come into contact with the world of thought and to share the ideas of the great minds of the Christian era can afford to be ignorant of. All modern literature and all art are permeated with it. There is scarcely a work in the language that can be fully understood and enjoyed without this knowledge, so full is it of allusions and illustrations from the Bible. This is true of fiction, of poetry, of economic and philosophic works, and also of the scientific and even of the agnostic treatises. It is not at all a question of religion or theology or dogma; it is a question of general intelligence. A boy or girl at college, in the presence of the works set before either to master, without a fair knowledge of the Bible is an ignoramus and is disadvantaged accordingly." — *Charles Dudley Warner.*

“The fool saith, ‘Put not all thine eggs in one basket;’ the wise man saith, ‘Put all thine eggs in one basket, and watch that basket.’” — *Mark Twain*.

“The first years of every man’s business or professional life are years of education. They are intended to be, in the order of nature and Providence. Doors do not open to a man until he is prepared to enter them. We think it is the experience of most successful men who have watched the course of their lives in retrospect, that whenever they have arrived at a point where they were thoroughly prepared to go up higher, the door to the higher place has swung back of itself and they have heard the call to enter.” — *George A. Macdonald*.

“Take it for granted that there is no excellence without great labor. No mere aspirations for eminence, however ardent, will do the business. Wishing and sighing and imagining and dreaming of greatness will never make you great. Laborious study and diligent observation of the world are both indispensable to the attainment of eminence. By the former you must make yourself master of all that is known of science and letters; by the latter you must know men at large and particularly the character and genius of your own character.” — *William Wirt*.

“To become a great lawyer the student must live like a hermit and work like a horse.” — *Lord Elgin*.

“First find out what you are fit for, and then do your very best to develop yourself along the lines that nature has laid out for you. Versatility does not pay. By this I do not mean that a man may not be a great lawyer and also a creditable musician, a good golfer, and a pro-



ficient broad-swordsman. These latter accomplishments have to do with the social aspect of life, in itself a very important one. What I mean is that no man can be at one and the same time a successful practising lawyer, a prosperous business man, and a great financier, and that no law student will ever become a successful lawyer who while studying law also gives his attention to politics, to society, to sport, and to money-making. Shoemaker, stick to your last!" — *George A. Macdonald.*

"The greatest ministers and leaders for peace whom I ever met were the generals whose fame fills the world and whose victories we applauded in our civil strife, Grant and Sherman and Sheridan. During the whole of their lives after the war they were the apostles and preachers of peace." — *Chauncey M. Depew.*

"The leaders of the Revolutionary struggle represented colonial success. Washington was the richest man in the United States. Jefferson and Hamilton, Jay and the Adamses, were the best products of the culture of American colleges and of opportunity. In the second period, when the contest was for the supremacy of the principle of the preservation of the Union against the destructive tendencies of State rights, Daniel Webster and Henry Clay represented the American farmers' sons who had also received the benefits of a liberal education. In the third period, the protest against the extension of slavery, the war for the Union and the reconstruction of the seceded States were the contributions which came to our statesmanship from the newly-settled territories, and we had the heroes born in the log cabins. The makers of our history during the last fifty years have come largely from the log cabin, or its scarcely more ambitious successor, the primitive farmhouse.—*Chauncey M. Depew.*



"Provincialism and isolation from the world produce magnificent enthusiasm. Enthusiasm is like the thunder and the lightning, which clear the atmosphere and give new vigor to life. In lamenting the disappearance of its manifestation I often wonder whether the passion is lost."— *Chauncey M. Depew.*

"Things happen because men make them happen. If they waited for them to occur they would never occur. They who wait for a favorable turn of affairs will wait in vain. They must create the favorable turn desired. God has furnished the faculties, but men must use them ; and they must know how to use them, too. They must help themselves or never be helped. The way may not open ; they must open it."— *Wm. M. Thayer.*

"He never undervalued culture. He secured to himself the equivalent of a college curriculum by a course of study and reading which he mapped out for himself. Probably no man ever lived for whom reading did more than for him. He became a scholar of distinction and was particularly advanced in Hebrew. His tutor declared that he could have taken a university degree on examination at any time after reaching his manhood. Reading did it chiefly, a fact that is worthy of the serious attention of young people, and of adults who desire to advance in knowledge." — *Thayer's "Life of Spurgeon."*

"The childhood of Henry Ward Beecher was unmarked by the possession of a single child's toy as the gift of any older person, or a single fête. Very early, too, strict duties devolved upon him. A daily portion of the work of the establishment, the care of the domestic animals, the cutting and piling of wood, or

tasks in the garden, strengthened his muscles and gave vigor and tone to his nerves. From his mother and father he inherited a perfectly solid and healthy organization of brain, muscles, and nerves ; and the increasing let-alone system under which he was brought up gave him early habits of vigor and reliance." — *Harriet Beecher Stowe.*

“ And must I always swing the flail,  
And help to fill the milking-pail ?  
I wish to go away to school ;  
I do not wish to be a fool.”

*Boyish verse of John G. Whittier.*

“ We see great wonders now and then,  
Here lies a lawyer, and an honest man.”

*John Doe.*

(Comment by Richard Roe on reading the above:  
“ Well, well, why did they put them both in the same grave ? ”)

“ See to it that you preserve your moral purity. It can never be too early to begin. The temptations of youth, like all others, can be conquered. Do not believe those who tell you that such an achievement is impossible. It is perfectly possible, as many have proved. Take my word for it, the word of a man who has no possible motive for misleading you ; and nothing will so help you to it, nothing will tend more to keep you from evil, than the company of good books and the thoughts and counsels of good men.” — *Chief-Justice Coleridge.*

“ When I began to practise law I never let a legal argument pass out of my hands without reading it three times at least.” — *Daniel Webster.*

“When Governor Seymour, one of the finest types of the American gentleman, was defeated in his last race to succeed himself in the gubernatorial office, I met him in Albany, and supposed, because I had been six weeks on the stump attacking his positions politically, that there would be, as the girl said about herself and her lover, a distance and at the same time a coolness between us. But he greeted me with the old-time cordiality and then said: ‘You are a young man and I am an old one; you have a talent for public life, have got on very fast, and undoubtedly can make a career. But there is nothing in it. I have seen during my thirty years’ activity in politics the men come up and down State street to the Capitol who concentrated upon themselves the attention of the people and seemed destined to become famous. One by one they were dropped by their party and disappeared from public view, lost touch with their business or profession, and died in obscurity and poverty. In the war of 1812 there were three men who performed a signal service on the frontier, and their deeds were so appreciated that the Legislature sent a special commission to bring their bodies to Albany, and their remains were met here by all there was of power and authority in the Empire State, and the governor and the judges and the State officers and the Legislature marched in procession and buried them in the grounds of the Capitol; and now no one knows what part of the Capitol grounds they were buried in, what were their names, or what they did.’ While there is much philosophy and infinite truth for the average man in the old governor’s advice, yet there are exceptions and exceptional times when enthusiasm should inspire effort and fame be a secondary consideration.”— *Chauncey M. Depew.*

“We live in an age of associations. Steam, electricity, and invention have so accelerated the pace of progress

that the individual has lost his place. Capital combines in great corporations, not only where it is required in great sums for railways and telegraphs, but in lumbering, mining, manufacturing, and store-keeping. Labor combines both in separate industries and in general federation. The doctor and the scientist discover that development is so rapid that they must also form associations if they would keep step with the period." — *Chauncey M. Depew.*



JOSEPH H. CHOATE.

A brilliant orator, an able lawyer, and a ready after-dinner speaker, Joseph H. Choate became one of the leaders of the New York bar. Born in Salem, Mass., in 1832, he was graduated from Harvard College, and after twenty years' practice he was made a member of the Committee of Seventy that destroyed the Tweed ring. In 1894 he was president of the New York Constitutional Convention. In 1899 he was appointed ambassador of the United States to England.



“ IF THE COURT PLEASE.”

“ A Lawyer without history or literature is a mechanic, a mere working mason ; if he possesses some knowledge of these he may venture to call himself an architect.” — *Sir Walter Scott.*

No man has in recent years given better advice to young men who contemplate the study of the law, and no man is in better position to give such advice, than the Lord Chief-Justice of England. Many of his remarks apply as well to this country as to his own. “ I name love of the profession as the first qualification,” he says. “ I name physical health and energy as the second. No man of weak health ought to be advised to go to the bar. For mental qualifications, clear-headed common sense. There remains one other main consideration to be taken into account, namely: ability to wait. Unless a man has the means to maintain himself, living frugally for some years, or the means of earning enough to maintain himself in this fashion, say by his pen or otherwise, he ought to hesitate before going to the bar.”

Those requirements he names apply equally well to every other profession and calling — a love of it, good health, and clear-headed common sense. The ability to wait, the pecuniary ability, is not such an absolute necessity in this country as it is in England. And it is less necessary in the law, in this country, than in almost any other profession. Not that reputation and the practice it brings can be gained more easily and more quickly in the law than in the other professions, but that more ways of self-support, while waiting, are open to the young lawyer than to most other young professional men.

The young physician must keep up appearances at all hazards. If, while trying to establish a practice, he engages in any other occupation, he injures his prospects. He cannot be much of a doctor, the public conclude, if his profession will not support him. The young clergyman has even fewer opportunities while waiting for his first charge. But the young lawyer may, without injuring his dignity or his prospects, turn his hand to almost any honorable occupation.

Literature is often the hope of young professional men in their struggling days. Here again the young lawyer has a better chance than the others. Literature for the young man who has just taken his diploma does not mean writing novels, or even acceptable magazine articles, except in very unusual cases. That is a profession in itself, and the men who succeed in it have served their apprenticeship and have done their own struggling. For the beginner it means the drudgery of the profession, usually in the form of newspaper reporting. A struggling young physician or a young clergyman cannot well be a newspaper reporter, for many reasons; but I have seldom known a large newspaper office in any of the principal cities to be without two or three young reporters who were either making their way through the law school or preparing to establish a practice. And the experience of a reporter is invaluable to a young lawyer.

There are two doors to the legal profession — the law school and the lawyer's office; and it is the general opinion of lawyers that a combination of the two gives the best preparation; first the law school, then the lawyer's office. In the law school you learn principles; in the office, practice.

"After the law school," says Mr. Justice Oliver Wen-



dell Holmes, "spend six months in a good office to see how things are done, and also perhaps to get a little of the usual law student's conceit rubbed off, and then begin."

One of the greatest advantages of the law school is the association; the mingling with other men who are pursuing the same studies at the same time. This is a great help, for Blackstone and the other preparatory works are dry studies when taken in solitude. They need the sauce of companionship to make them palatable. Another advantage is that your work is laid out for you. You know just what you are to do. But if you have a secret desire for the degree that follows graduation from a law school, the degree of LL.B., you cannot dismiss it from your mind too soon. There is not the least advantage in such a degree; it does not even make an impression upon the ignorant. In all the professions the leading men care nothing for degrees. The man must be greater than his titles, or the titles only make him look ridiculous.

If you are ready for earnest, hard work, the law school will be a great help to you. But if you have any inclination to shirk, to make work as easy as possible, then think twice before you go to one, for the law schools, even more than most educational institutions, can be made very easy and almost useless.

To show you why this is the case I must give you some insight into the methods of such schools, my knowledge of which is confined to those of the State of New York. You are no longer a boy, when you enter the law school, but a man, and as a man capable of self-government you are treated from the beginning. There are, for example, four hundred students in the school; two hundred in the senior class, two hundred in the junior; and each of

these is subdivided into the morning and afternoon classes, giving about one hundred men to each division.

Here you are, then, in the class-room, one of a hundred students, provided with a little blank-book and a pen, and one of your first duties is to write from dictation the "lectures" of the day. These lectures are prepared usually by the head of the school, and are read aloud by one of the professors. They contain a vast amount of useful and valuable information; and, continued daily throughout the whole course, fill many of the little blank books. To the student who studies them intelligently they are a great benefit. But here is the shirker's first chance.

These lectures are always for sale. You see the little notices tacked to the bulletin-board in the hall: "For sale, complete set of Junior lectures. Apply to so and so." The junior who advances to the senior class is glad to sell his first year's lectures for five or ten dollars. The senior about to graduate sells his senior year lectures, especially if he is pressed for money. The shirker, just entering the school, soon finds that if he is absent from the lecture there are no serious consequences. If he is absent the loss is his own, and he is not taken to task for it. Writing the lectures is hard work. He will buy a set, and read them in the evenings. But in the evening something else occupies his attention, and at the end of the year he knows no more about the lectures than if he had stayed at home. If you go to a law school I hope that every page of your lecture-books will be in your own handwriting.

Then the shirker makes another discovery. The class is reading Blackstone, or Parsons on Contracts, and in the recitations the men are called up alphabetically. There is barely time to hear twenty-five recitations in the

hour or so appointed. So each man is called upon for a recitation only once in four days; if his name is called on Monday, it will not be called again till Friday. If he is present on those days, and in the gymnasium or at baseball games the intervening three days, he can still keep his apparent standing in the class.

And it is the same with the mock trials, or "moot court cases," which come once a week, usually in the form of a motion for a new trial, to avoid the necessity of a jury. The questions of law involved require long and tedious hunting for decisions in the school library. Shirk is appointed to conduct the defence, but he has no stomach for such drudgery. Jones, his seat-mate, who is in need of money, will gladly look up all the decisions for him for a dollar or two. And at the end of his second year, as you may easily imagine, Shirk goes home an LL.B., and an ignoramus.

It is well that you should know these things in advance and be prepared to avoid them, for you cannot be long in a law school without seeing them. The fault is not with the school, but with the student. In a law school are no punishments, no great incentives, except such as lie within you.

In the lawyer's office you learn many details of the work that cannot possibly be learned in the law school. You not only see the actual work done, but help to do it. You are in constant association with men who are engaged in actual practice. And although you have not the benefit of competition with fellow-students, you have one advantage that is lacking in the law schools, namely, the knowledge that when you come to your examination for admission to the bar you must be fully prepared for it. Admission for the graduate of a law school is almost a matter of course. Custom differs somewhat in differ-

ent States, but in general the inference is that graduation by a law school is good evidence of fitness for admission to the bar. It is not so with the private student. The private student stands entirely upon his own merits, without the prestige that a good law school gives.

It is a common belief that the legal profession is greatly overcrowded; and the large number of lawyers in every city and town lends some color to the belief. But it is doubtful whether it is more crowded now than it was half a century ago, considering not only the vast increase in population, but the more than corresponding increase in legal business. Business enterprises were then on a comparatively small scale. Now they are on a grand scale, and their management is much more complex. No great company is without its counsel, and many companies employ enough lawyers to fill a courtroom. A trunk railway line not only has its leading counsel at headquarters, with his corps of assistants, but it has also a legal staff in every State through which it passes. Every insurance company, too, must have its lawyers, every coal company, every oil company, almost every company of any kind with property interests to be guarded. There are many lawyers, but there is much work for them.

So many of the leading lawyers are engaged in such work that they have come to be known distinctively as "corporation lawyers." You will not have to decide for a long time, probably, whether you are willing to be a corporation lawyer or not, for the rich companies have money to spend, and they can afford to employ not only the best talents, but the highest reputations. Some of these companies are so grasping in their methods that they have made the name "corporation lawyer" almost a term of reproach. Fortunately, corporations are not

all so. In serving the grasping companies there is more profit than honor. A private individual has little chance in opposing one of them, even though law and justice be on his side. The company can afford to take the case to one court after another, till the individual is bankrupt or his patience is exhausted. Such cases are sometimes robbery pure and simple, robbery to which the attorney is as much a party as his client. What I should say to you about such cases is precisely what I should say about any other form of dishonesty. A million dollars is not enough to pay a man for the knowledge within his own breast that he has dishonored himself.

There will always be two opinions about your ability. Some persons will call you "very smart," while others will call you a stick. You can stand being called a stick if your whole life is so ordered, from the very beginning, that the enemy who applies the epithet is compelled to add, "but he is a thoroughly honest man."

You can compel every man to make that addition if you will. All the old and foolish inquiries about the possibility of a lawyer's being honest you may brush away with a sweep of the hand. A man can be thoroughly honest in any legitimate calling. It depends upon the man, not upon the calling. I can call to mind at this moment the names of a score of noble men to whom it would be an indignity even to discuss the possibility of a dishonest lawyer. Abraham Lincoln was a lawyer. The law breeds noble men, for it is a noble profession. It defends the weak; it curbs the undue power of the strong; it gives to every man justice; the innocent it exculpates; the guilty it punishes. All this it does in theory; in practice its operation depends upon the character of the man who administers it. It is sometimes so distorted that it oppresses the weak, convicts the innocent, and lets the guilty escape.

"The lawyer has to remember," says the Lord Chief-Justice of England, "that while he is fighting for the interests of his client, there are greater interests even than these: the interests of truth and of honor."

"In the battle," said Sir Alexander Cockburn, "his [the lawyer's] weapon must always be the sword of the soldier, and never the dagger of the assassin."

A well-grounded reputation for honesty and integrity is the very best capital that a lawyer can have. Let a prospective client be thoroughly convinced of your absolute honesty, and he will think twice before going elsewhere. It counts for more than shrewdness—not for more than common sense, for it *is* common sense. Trickery and cunning devices may win cases, but they do not win clients. People are afraid to trust a trickster. He who has betrayed one man may betray another. Honesty from the very beginning. You want no skeletons in the closet; they have an unhappy way of stepping out when least expected. A clean, unsullied record from the day you are admitted to the bar till you are summoned before the bar of a higher court.

It cannot be denied that there are lawyers who disgrace the profession. There are such men in all professions. You do not judge the great body of clergymen by the occasional one who proves unworthy. The more bad lawyers there are the greater the need for good ones. If you have the "clear-headed common sense" spoken of you can be a good one if you will. Lack of ability you can at least partially atone for by hard work; but your unassailable integrity is in your own hands from the outset.

"There is no terror, Cassius, in your threats,  
For I am arm'd so strong in honesty  
That they pass by me as the idle wind  
Which I respect not." — *Shakespeare*.

## THE STUDY OF THE LAW.

“As a young law-student, visiting my friend and your respected townsman Mr. James Sweeney, I came up to make my first political speech at Buffalo. I have a lively recollection of that speech, my first in a city and to a great audience. I am afraid that it justified the criticism passed by an old lawyer upon it that it had more frills than shirt. It was certainly more lurid than logical, though the intensity of the feelings and passions of the hour made possible an enthusiastic reception for its declarations and declamations. I remember lying awake all night, wondering whether the United States district attorney would summon me before the grand jury to justify the charges I had made against President Buchanan and his cabinet of conspiring for the overthrow of the government in the interest of the slave power. It is the only night of my life that I ever lay awake an hour on account of a political speech. The apprehensions of the government moving in the matter were an illustration of that lack of the sense of proportion which is a defect of youth.” — *Chauncey M. Depew.*

“I resolved when beginning to read law that I would make everything I acquired perfectly my own, and never to go to the second until I had accomplished the first. Many of my competitors read as much in a day as I read in a week, but at the end of the twelve months my knowledge was as fresh as on the day it was acquired, while theirs had glided away from their recollection.” — *Sir Edward Sugden.*



“The study of the law differs from that of some other subjects in this: that its end cannot be accomplished by merely memorizing words. Its object is the acquisition of principles. When the student acquires a thorough knowledge of the principles of his subject he has mastered the text. If he merely memorizes words the text has mastered him. And when sooner or later the words of the text escape him he is helpless without them. Nor should he regard an illustration of the principle as a definition of the principle itself.” — *George A. Macdonald*.

“The student should bear in mind that to be a good lawyer in every sense of the term one must be a good man. He should remember that the highest attainments are imperfect without that delicate moral sense which feels a stain like a wound, and that resolute moral strength which makes a man submit to be torn in pieces rather than do what he knows to be wrong.” — *Anonymous*.

“Of law no less can be said than that her seat is the bosom of God, her voice is the harmony of the world; all things in heaven and earth do her homage: the very least as feeling her care and the greatest as not exempt from her power; both angels and men and the creatures of what condition soever they are, in different sort and manner, but all with uniform consent, admiring her as the author of their peace.” — *Hooker*.

“Look up to the exalted characters of the past and resolve, at least, to imitate if you cannot equal them; but despair not even of that. Do you think they would ever have risen to their own elevation if they had not beheld the eminence of some master whom they venerated at an awful distance as you now venerate them? By such examples the study of law comes recommended to us, and he who would rise in it must have such exam-



ples before his eyes; he ought never to lose sight of them. The eloquence, the wisdom, the justice, and the virtue which distinguish them must be his; he must labor as they have labored, he must study as they have studied, if he expects to reap the same glorious rewards which have crowned their course." — *A Member of Lincoln's Inn.*

"There has, of late, been much discussion as to the best method of legal education: whether that known as the case system, by which the student is at the very outset of his studies required to deal with the original sources of the law — that is, by the study of cases — or that system for so many years followed by the great teacher Prof. T. W. Dwight; which system consists of the study of the general principles of the law as presented in text-books, with comments in the form of lectures by the instructors, and reference to particular cases to illustrate the text-book matter." — *George A. Macdonald.*

"Of the first, the case method, James C. Carter, of the New York bar, says: 'The law is alone found in those adjudications and those judgments which from time to time its ministers and its magistrates are called upon to make in determining the rights of men. What was our former method of acquiring a legal education? Going primarily to the judgment? No. For the most part the basis of those investigations was in the study of text-books, the authors of which, if they had acquired any knowledge of the law themselves, must have gotten it by resorting to the original sources. We therefore got it at second-hand. I think the result of all investigations concerning the method by which any science may be cultivated has been to teach us to go to the original sources and not to take anything at second-hand. Now, is this method open to the objection that the study of cases is

apt to make the student a mere case lawyer? Not at all. The purpose is to study the great and the principal cases in which are the real sources of the law, and to extract from them rules which, when discovered, are found to be superior to all cases. This method of studying law by going to its original sources has no royal roads, no primrose paths. It is full of difficulties. It requires struggle. If there is anything calculated to try the human faculties in the highest degree, it is to take up the complicated facts of different cases; to separate the material from the immaterial, the relevant from the irrelevant. I know of no greater intellectual gratification than that which follows from the solution in this way of the great problems of the law as they successively present themselves.’”

“The Dwight method receives its name from Prof. Theodore W. Dwight, who came to New York in 1858, to open a law school in connection with Columbia College. The new school for some years had to combat a prevailing spirit of hostility among the lawyers, who having been brought up themselves in lawyers’ offices viewed that as the only true way to gain a legal education, and regarded the new method as an absurd innovation. The new method triumphed, however, and before many years lawyers and judges were sending their sons to the school, and institutions of like character began to spring up all over the United States. Professor Dwight described the system as simply the natural method of instruction, which has been pursued since man began to teach and pupils to learn. It is a method of recitation and exposition, accompanied by the reading of illustrative cases. It uses text-books as the basis of instruction. Its theory is that a legal treatise by an able writer may have great value as a statement of the law to be deduced

from the statutes and reports. In the same way we have seen that Parkman's works have great value in exhibiting the history of an epoch. The practice in using the text-books is this: The instructor assigns each day to his class a certain number of pages of the text-book for careful study and preparation for the recitation of the next day. When the class meets again the next day for recitation, he questions them one after another, in rapid succession, in regard to the rules of law which they have studied, receives their answers, finds out thus whether they have understood what they have read, and by a running comment of his own, which is intended to simplify and illustrate the subject under consideration, endeavors to make the legal rules and principles so clear and so well adapted to their comprehension that they will bear away with them full, clear, and definite knowledge." — *Dean Chase, of Columbia College Law School.*

"No man can be a sound lawyer who is not well read in the laws of Moses." — *Fisher Ames.*

"Mark Hopkins, seated on a log, would be a university." — *James A. Garfield.*

"Many young men on leaving college at once place themselves in a law office and are frequently made mere drudges, to copy pleadings, deeds, letters, etc., which the proprietor of the office is either too busy or too indolent to copy himself, and which neither improve the student's handwriting nor add one mite to his legal stores. Others are suffered to grope through the intricacies of the law without torch or clue, and destitute of all method. Left to self-direction they essay the perusal of some black-lettered folio as the herculean task alone necessary to be surmounted; the difficulties of this widely diffuse science are then to vanish, and this musty and ponderous

folio is to be the avenue through which they are to pass, as by enchantment, into smooth and uninterrupted paths. Some again are contented with the scraps and bits of knowledge gained by writing deeds and declarations, while the remainder of their office hours are dedicated to politics and pamphlets or the ephemeral and amusing productions of the day. We entreat the student to devote three-fourths of the period allotted to his legal apprenticeship to private study, and by no means to enter an office until the year previous to his entering the practice of his profession." — *Hoffman*.

"Accuracy and diligence are much more necessary to the lawyer than great comprehension of mind or brilliancy of talent. His business is to refine, advise, split hairs, look into authorities, and compare cases. A man can never gallop over the fields of law on Pegasus, nor fly across them on the wing of oratory. If he would stand on terra firma he must descend. If he would become a great lawyer he must first consent to become a great drudge." — *Daniel Webster*.

"There is a great deal of law learning that is dry, dark, cold, revolting; but it is an old feudal castle in perfect preservation which the legal architect who aspires to the first honors of his profession will delight to explore and learn all the uses to which its various parts used to be put; and he will the better understand, enjoy, and relish the progressive improvements of the science in modern times." — *Wm. Wirt*.

"The absolute justice of the State enlightened by the perfect reason of the State — that is law." — *Rufus Choate*.

"It was my good fortune to know very well the men who were making Buffalo thirty years ago, most of them

older than myself and some young men like myself. There were no featherheads or lunatics among them. At the bar, among the young and the old in that and a few subsequent years, were Millard Fillmore, President of the United States, and Judge Hall, Postmaster-General. There were Henry W. Rogers and the courtly John Ganson; there were Bowen and Lanning and Putnam brothers and Hopkins; and, still in their prime, our friends Postmaster-General Bissell and Sherman S. Rogers and E. C. Sprague and Judge Daniels and Grover Cleveland. Where is there a bar of the same size which has contributed so much to the history of our State and country?" — *Chauncey M. Depew* (1895).

"Men that hire out their words and anger; that are more or less passionate according as they are paid for it, and allow their client a quantity of wrath proportionate to the fee which they receive from him." — *Addison on Lawyers*.

"There are two very different methods of acquiring knowledge of the laws of England, and by each of them men have succeeded, in public estimation, to an almost equal extent. One of them, which may be called the old way, is the methodical study of the whole system of law and of its grounds and reasons, beginning with the fundamental law of estates and tenures and pursuing the derivative branches in logical succession and the collateral subjects in due order. The other is to get an outline of the system by the aid of commentaries and to follow it up by desultory reading of reports and treatises according to the bent of the student, without much shape or certainty in the knowledge so acquired, until it is given by investigation in the course of practice. A good deal of law may be put together by a facile or flexible man in the second of these modes, and the public are often sat-

ified; but the profession itself knows the first by its fruits to be the most effectual way of making a great lawyer." — *Horace Binney*.

"I never was what a statesman — an accomplished statesman — ought to be. Indeed, a lawyer hardly can be both learned in his profession and accomplished in political science." — *Lord Eldon*.

"I once before took leave to remind your lordships — which was unnecessary, but there are many whom it may be needful to remind — that an advocate, by the sacred duty which he owes his calling, knows in the discharge of that office but one person in the world, that client and none other. To save that client by all expedient means — to protect that client at all hazards and costs to all others, and among others to himself — is the highest and most unquestioned of his duties. And he must not regard the alarm, the suffering, the torment, the destruction which he may bring upon any other. Nay, separating even the duties of the patriot from those of the advocate, and casting them if need be to the wind, he must go on, reckless of the consequences, even if it should unhappily be to involve his country in confusion for his client's protection." — *Lord Brougham's Address in Defence of Queen Caroline* (1820).

"I am grieved to hear that the reading of Coke upon Littleton is going out of fashion among law students. When I was commencing my legal curriculum I was told this anecdote: A young student asked Sir Vicary Gibbs how he should learn his profession. Sir Vicary. — 'Read Coke upon Littleton.' Student. — 'I have read Coke upon Littleton.' Sir Vicary. — 'Read Coke upon Littleton over again.' Student. — 'I have read it twice

over.' Sir Vicary. — 'Thrice?' Student. — 'Yes; three times over and very carefully.' Sir Vicary. — 'You may now sit down and make an abstract of it.'" — *Lord Campbell*.

"Pray let no quibbles of lawyers, no refinements of casuists, break into the plain notions of right and wrong which every man's right reason and plain common sense suggest to him. To do as you would be done by is the plain, sure, and undisputed rule of morality and justice. Stick to that, and be convinced that whatever breaks into it in any degree, however speciously it may be terined or however puzzling it may be to answer it, is false in itself, unjust, and criminal." — *Lord Chesterfield*.

"The client who was conscious of the goodness of his case would prefer an advocate whose known maxims of conduct gave weight to every case that he undertook. When such a man appeared before a jury they would attend to his statements and reasonings with that confidence which integrity alone can inspire. They would not make, as they now do, perpetual deductions from his averred facts; they would not be on the watch, as they now are, to protect themselves from illusion and casuistry and misrepresentation. Such a man, I say, would have a weight of advocacy which no other qualification can supply." — *Dymond*.

"It is the boast of the Englishman that his property is secure, and all the world will grant that a deliberate administration of justice is the best way to secure his property. Why have we so many lawyers but to secure our property? Why so many formalities but to secure our property? Not less than one hundred thousand families live in opulence and elegance and ease merely by securing our property." — *Goldsmith*.



“The lawyer who is vehement and loud in a case wherein he knows he has not the truth of the question on his side is a player as to the impersonation part, but incomparably meaner than he as to the prostitution of himself for hire. Because the pleader’s falsehoods introduce injustice; the player plays for no other end but to divert or instruct.” — *Sir Richard Steele*.

“Advocates must deal plainly with their clients and tell the true state of their case.” — *Jeremy Taylor*.



## FEELING THE PULSE.

“Is there no balm in Gilead? Is there no physician there?” — *Jeremiah viii, 22.*

OVERCROWDED as the medical profession is in all parts of this country, there is still room for good physicians. And there must always be a demand for their services; that is human nature. If there were no physicians we should in times of sickness seek the aid and advice of some friend who had the knack of treating disease and who was acquainted with the human body. Such a friend would be in fact a physician, though without the special training that modern physicians have. This is true also of clergymen and lawyers. It is human nature to call for help when in trouble, whether the trouble be of the spirit, the purse, or the body. “The afflicted or distressed, in mind, body, or estate,” want a counsellor, even if he can give them no more than sympathy.

It is a noble calling, relieving the bodily afflictions of our fellow-men; and under favorable circumstances it is a very profitable one, as it should be. Under almost any circumstances, with proper management, it affords a respectable livelihood. But what is proper management, the best management, it is not always easy to determine. In your own case, if you have a leaning toward medicine, you should inquire of yourself with great frankness and honesty whether you are physically and mentally fitted for the profession.

Are you strong? Is your health good? It is a wearing profession. There is no hour of the day or night

that a doctor can call absolutely his own. The best patients are sure to choose the worst nights for their illnesses. You hear of the long drives that country doctors must take, but it is just as bad in the city. The physician whom I know best of all, a specialist in one of the large cities, wears out two pairs of horses every few months. One pair he uses in the mornings, the other in the afternoons, and at night he hires horses. In frequent visits to his house during my whole life I have never seen him eat a dinner in comfort or without interruptions. If he were not made of iron he could not do it. And there is a mental strain, in a large practice with many surgical cases, that is quite as wearing as the physical labor. Without robust health you should think twice, or twenty times, before going into the medical profession.

Without sound common sense no physician can make a lasting success. No education, no experience, can take the place of it. I need not ask you whether you have such sense, because all the young men and most of the old ones think that they have it. Your family and intimate friends can judge of that for you better than you can judge of it for yourself.

Have you a liking for the profession? Do you take kindly to patching your brother's bruised shins and curing your aunt's sick headaches? Are you a good hand in the sick-room? Without this aptitude, which I do not call a natural aptitude, because it may be acquired, you would find the work very unpleasant. A festering wound that a layman turns away from with loathing, the enthusiastic surgeon calls "a beautiful case." You must have a liking for the work, and take an interest in it, or you cannot hope for success.

If you conclude that you are "cut out for a doctor"

you must next inquire what are your opportunities for gaining a foothold in the profession. Any young physician can go a stranger into a strange town and open an office, and his chances of success are about one in a thousand. Another young man, his competitor, whose family live in the town and have friends and influence there, has a paying practice established while the stranger is still hoping against hope for patients. Where you are known, and favorably known, and where your family and surroundings are known, you have a much better chance than among strangers. But even in a strange place you need not necessarily be among strangers. Your relatives and friends can give you a few letters of introduction to prominent people, perhaps, in the place you select. With these, and with the friends you make at church and in the societies you join, you will, if your manner is agreeable, soon have a circle of acquaintances.

A young lawyer can push himself forward in a thousand ways; a young physician in hardly any way except socially. But the ways of social advancement are many, differing always under varying circumstances. The young lawyer may make himself a prominent figure at political meetings; may buttonhole and crack jokes with men whom he would not care to take home; may go, strictly on business, to almost any place at any hour; may, in short, be "a good fellow" with nearly everybody, without hurting his reputation or his prospects. The young physician most decidedly must not do these things. A young man who is not willing to put himself on fully as high a plane as his friend the clergyman, avoiding not only evil, but everything that has the slightest appearance of evil, should not waste his time and money in studying medicine. The public demand, and with good reason, that the doctor be as far above

reproach or criticism as the preacher. He must be pure and clean as well as competent. He is more than a paid adviser. He goes into the family, and all its members repose confidences in him concerning their health that they would repose in no other person. Their lives often depend upon his skill and fidelity. A man of ribald conversation, of loose habits, has no right to expect to be put into such relations with respectable families. Sad is the day for a young physician when it is said of him, "He is a good doctor; but he is a little fast;" or, "Yes, he is good; but he drinks!" No man cares to put his life into the hands of a doctor whose brain may be fuddled with alcohol or drugs.

Most physicians agree that the best foundation for a medical training is study in a physician's office before the medical-school studies begin. If you have a relative who is a physician in good practice, and he will take you as a student in his office, there is your chance. If you have no such relative, but a friend, or a friend of your father's, or the family physician, who sees signs of promise in you and will take you, there is your chance again. If you have neither relative nor friend available, you can certainly find some good physician who will take you as a student in his office for a consideration; and having once become a student, you have established a base for future operations, and know always where to turn for assistance and advice.

Whether this preceptor is in practice in the city or in the country makes far less difference than you may be inclined to think. The well-established city physician is almost certain to take in more money during the year than his country brother; but it is the end of the year, after the bills are paid, that you must look at. If the city income is five times as large, and the expenses also

are five times as large, there is no financial advantage. The difference between two hundred a year for a house in the country, and two thousand a year for a house in the city is very great. The choice between city and country should be determined entirely by the circumstances in which you are placed. If your best opening in a physician's office is in the city, then common sense will point you toward the city; but you need have no fears of the country, if fate points in that direction. There are doctors in the country, but there are no longer "country doctors," as we once knew them. If you go through the medical school, as you must, and have a hospital experience, as you must, and keep in touch through the medical periodicals with all that is new and good in the profession, as you must and will, there is no danger of your becoming a "country doctor."

The young man who feels that his abilities are too great to be confined to the country or a small town, that a large city is the only field for the exercise of his superior talents, can easily cure himself of that complaint. Let him visit one of the large cities, and walk through the residence streets, and see how the front windows are dotted with physicians' signs, and count till he is tired, and he will likely go home wondering whether there can be a patient for each doctor.

The free dispensaries must not be forgotten, in striking a balance between city and country. In the country practically every sick person, rich or poor, must go to the doctor. But in the city all of the very poor, and large numbers of the moderately well-to-do, go to the free dispensaries. This is a source of much complaint by struggling city physicians, but complaints are useless. The dispensaries are necessities, and some people who are able to pay will always go to them to save doctors' bills.

Becoming a student in a physician's office is a step that may be taken very early in life, and it gives the student an opportunity either to make himself so useful to his preceptor that he becomes as indispensable as the office chairs, or — to find that he has mistaken his calling, and to seek new paths before it is too late. Supposing that you are the student, it is time then for you to determine what your training is to be. Your preceptor will give you advice on this subject that is suited to your special circumstances. But in this matter of advice I must caution you that in nearly all cases the early struggles of men who have fought their way up look worse from a distance than they seemed at the time. That is human nature again. A skirmish becomes a pitched battle when the old soldier is telling his stories before the blazing hearth. Few things were quite as bad at the time as they seem when we look back upon them. Do not be frightened by stories of hard work or hard living. The man who tells them must have lived through all the hardships.

It is with the sanction of many excellent authorities, and in opposition to others equally good, that I tell you that for a physician a classical training is desirable, but not absolutely necessary. Without hunting long or far you can find a regiment of skilful and successful doctors who are not college graduates. The most radical advice that I know of was given recently by so good an authority as Dr. George F. Shrady.

“A classical and scientific education,” he says, “besides the knowledge gained in the medical college, is an absolute necessity to future success in medicine. It is the groundwork that must not be neglected. Time was when a boy could step from the plough or the carpenter's bench into medicine, but that state of affairs has gone

forever. To-day the young man who has the medical profession in view should enter college so that he can graduate before he is twenty-five. Then he should take a four years' course at a first-class medical college. If he can, after that, he should spend two years in hospital, and if possible two years more in study abroad. Then he can come back ready to begin practice. The young man who would succeed in medicine must be willing to barely keep body and soul together, if necessary, in order to gain that absolute requisite — an adequate education."

There is clearly the advice of a successful man who describes things, not as they are, but as he would like to see them. Six years (at least) in grammar and preparatory schools, four years in college, four years in medical school, two years in hospital, two years abroad — eighteen years of preparation. Wealthy as the nation is, it is still one boy in a thousand whose family can afford such an outlay for him. And, after all, the young man with a good academical education and the training of a medical school, combined with a love of the profession and the sound common sense that is indispensable, has at least an equal chance.

One of Dr. Shrady's other remarks is worthy of the most careful attention. "In choosing the medical profession," he says, "the aspirant for honors may be cheered by the probability that many of the greatest discoveries of medical science will be made within the next twenty-five or thirty years." That is alarmingly true — alarmingly because it shows what room there still is for improvement in the profession. It may be through you and your skill and sense (certainly not through your classical learning) that diseases which are now called incurable will be brought completely under the control of the physician. The circulation of the blood, the



efficacy of vaccination, were great medical discoveries ; but greater ones are yet to be made. The field for discovery is open, and the facilities are better than they ever were before.

Senator Chauncey M. Depew's advice to young physicians, "stick and dig," has great meaning in few words. Of course the doctor must dig, but not all doctors understand that they must stick.

"In the place where the tree falleth, there it shall be."

No physician can afford to be a rolling stone. Where he settles, there he should stick, through thick and thin, unless it becomes absolutely impossible. Even in a small town a change from one house to another causes much inconvenience and some loss. In a city frequent change of office is simply suicidal. Patients will not follow a physician from one section of a city to another. "Still at the old stand" must be one of the doctor's mottoes. And he must not expect that some celebrity among poor patients will lead to a practice among the wealthy. Not in all cases, but in most, he continues largely in the same social grade in which he begins. So a proper start is of the utmost importance.

It is idle to estimate how much money a physician can make. That depends wholly upon the man and his surroundings. He must do the work because his heart is in it, with all the interest that a great artist takes in his painting, — yes, with more. After he has secured a reasonable livelihood, the rest need not worry him. Some physicians have made a hundred thousand dollars in a year, and others, who have not begun right, make scarcely anything. But the chances of making a respectable living are very largely in the physician's favor.

And it would be equally idle at this stage to talk about specialists, hotel physicians, or private physicians



to very wealthy families. You must become a physician before you can devote yourself to any specialty, and the question with you is whether you shall enter the profession, and if so, how.

A studentship, then, in the office of some well-established physician. An academic education at the least; if your circumstances will allow you to go through college also, do so by all means. The ability to read and write and speak the English language correctly, for you must never make yourself ridiculous by making blunders in the use of your own language,—and this ability does not follow an academic or even a collegiate education as surely as you may be inclined to think. Then the medical college; and you will find that those in the largest cities will usually offer you the best advantages.

In most of the States entrance to the medical profession is strictly regulated by law, for the safeguard both of the profession and of the public. In the State of New York, for example, a student who desires to matriculate in a medical school must present a “medical-student certificate” from the Regents of the University of the State of New York, which can be obtained only as provided by the laws, of which the important parts are given in the following extracts:

FROM LAWS OF 1893, CH. 661, AS AMENDED IN 1895 AND 1896.

*To provide for the preliminary education of medical students:*

The degree of bachelor or doctor of medicine shall not be conferred in this State before the candidate has filed with the institution conferring it the certificate of the regents that before beginning the first annual medical course counted toward the degree, unless matriculated conditionally as hereinafter specified, he had either graduated from a registered college or satisfactorily completed a full course in a registered academy or high school; or had a preliminary education considered and accepted by the

regents as fully equivalent; or held a regents' medical-student certificate, granted before this act took effect; or had passed regents' examinations as hereinafter provided. A medical school may matriculate conditionally a student deficient in not more than one year's academic work or 12 counts of the preliminary education requirement, provided the name and deficiency of each student so matriculated be filed at the regents' office within three months after matriculation, and that the deficiency be made up before the student begins the second annual medical course counted toward the degree.

All matriculants after Jan. 1, 1897, must secure 48 academic counts, or their full equivalent, before beginning the first annual medical course counted toward the degree, unless admitted conditionally.

This act shall take effect immediately, except that the increase in the required course of medical study from three to four years shall take effect Jan. 1, 1898, and shall not apply to students who matriculated before that date and who received the degree of doctor of medicine before Jan. 1, 1902.

NOTES ON THE LAW, ADDED BY THE FACULTY OF THE COLLEGE OF  
PHYSICIANS AND SURGEONS, NEW YORK.

1. The medical-student certificate must be earned before the candidate begins the first annual medical course counted toward the degree, except that a student may matriculate conditionally and make up a deficiency of not more than 12 academic counts before the beginning of the second annual medical course counted toward the degree. If granted on evidence of a satisfactory college or high-school course or an equivalent, the work offered must have been completed before the candidate begins the second annual medical course counted toward the degree.

2. The regents will accept as fully equivalent to the required academic course any one of the following:

(a) A certificate of having successfully completed at least one full year's course of study in the collegiate department of any college or university, registered by the regents as maintaining a satisfactory standard.

(b) A certificate of having passed in a registered institution examinations equivalent to the full collegiate course of the freshman year or to a completed academic course.

Three full academic years of satisfactory work may be accepted as a full high-school course till Aug. 1, 1896, when four full academic years will be required.

(c) Regents' passcards for any 48 academic counts or any regents' diploma.

(d) A certificate of graduation from any registered gymnasium in Germany, Austria, or Russia.

(e) A certificate of the successful completion of a course of five years in a registered *ginnasio* and three years in a *liceo*.

(f) The bachelor's degree in arts or science, or substantial equivalents from any registered institution in France or Spain.

(g) Any credential from a registered institution or from the government in any State or country which represents the completion of a course of study equivalent to graduation from a registered New York high school or academy or from a registered Prussian gymnasium.

The rules of admission to medical colleges in the State of New York are consequently very simple, all preliminary examinations being conducted by the Regents of the State University. The requirements for admission to the College of Physicians and Surgeons, which is a part of Columbia University, are given in the catalogue of that institution as follows:

1. Students desiring to do special work at the College of Physicians and Surgeons may matriculate at any time during the year as special students. Such applicants, however, cannot subsequently become candidates for graduation at this college without full compliance with the terms of admission and graduation.

2. No entrance examinations are conducted at this college, but all students who matriculate with the intention of becoming candidates for the degree of doctor of medicine must present a *medical-student certificate from the Regents of the University of the State of New York*, obtained according to law.

#### NOTES ON THE RULES OF THE UNIVERSITY EXAMINATION DEPARTMENT.

*Order of Studies.* — There is no restriction in the order in which studies may be taken. Advanced students who have come from



*Second Year.*

Fee for all the required exercises of the year . . . \$200  
 Anatomical material, \$1 each part.

*Third Year.*

Fee for all the required exercises of the year . . . \$200

*Fourth Year.*

Fee for all the required exercises of the year . . . \$200  
 Examination fee . . . . . 25

This covers all the expense at the college except a small charge to cover ether, alcohol, and breakage in the laboratories.

Information in regard to board can be obtained through the Registrar, Mr. E. T. Boag, at his office in the college. Prices range from \$5 to \$9 per week.

The College of Physicians and Surgeons is selected as an example because it is one of the better known of the medical colleges. But it is only one of many, and any of the institutions will willingly send a catalogue full of information, on application. In some of the States the requirements for admission are not as high as in New York. But whether you lay the foundation for your medical knowledge in New York or in North Dakota, bear in mind that you are preparing for one of the most responsible of all professions, and that much will be expected of you. And when you are tempted to join in the frolics of "the wild set" in Academy or Medical School, remember that loose habits which may be acquired in a few days sometimes can hardly be shaken off in a lifetime.

"The best doctors in the world are Doctor Diet, Doctor Quiet, and Doctor Merryman." — *Jonathan Swift*.

## THE MAKING OF A PHYSICIAN.

“How is it now men do not grapple with their surroundings with their muscles, but with their brains? Every man is trying to make his head save his hands.” — *Dr. Wm. P. King.*

“I warn you against all ambitious aspirations outside of your profession. Medicine is the most difficult of sciences and the most laborious of arts. It will task all your powers of body and mind if you are faithful to it. Do not dabble in the muddy sewer of politics, nor linger by the enchanting streams of literature, nor dig in far-off fields for the hidden waters of alien sciences. The great practitioners are generally those who concentrate all their powers in their business. If there are here and there brilliant exceptions it is only in virtue of extraordinary gifts and industry to which few are equal.”

(The above was part of the advice given to a graduating class of the Bellevue Hospital Medical College by Dr. Oliver Wendell Holmes. A number of the following paragraphs are also taken from the same address.)

“There is another question which must force itself upon the thoughts of many among you: How am I to obtain patients and to keep their confidence? You have chosen a laborious calling and made many sacrifices to fit yourself for its successful pursuit. You wish to be employed that you may be useful and that you may receive the reward of your industry. I would take advantage of these most receptive moments to give you some hints which may help you to realize your hopes and expectations.”

“Science is a great traveller and wears her shoes out pretty fast, as might be expected.”

“You are now fresh from the lecture-room and the laboratory. You can pass an examination in anatomy, physiology, chemistry, materia medica, which the men in large practice all around you would find a more potent soporific than any in the pharmacopœia. These masters of the art of healing were once as ready with their answers as you are now, but they have got rid of a great deal of the less immediately practicable part of their acquisition and you must undergo the same depleting process. Hard work will train off, as sharp exercise trains off the fat of the prize-fighter.”

“There are modest practitioners living in remote rural districts who are gifted by nature with such sagacity and wisdom, trained so well in what is most essential to the practice of their art, taught so thoroughly by varied experience, forced to such mental self-reliance by their comparative isolation, that from converse with them alone, from riding with them on their long rides as they pass from village to village, from talking over cases with them, putting up their prescriptions, watching their expedients, listening to their questions, marking the event of their predictions, hearing them tell of their mistakes and now and then glory a little in the detection of another's blunder, a young man would find himself better fitted for his real work than many who have followed long courses of lectures and passed a showy examination. I am afraid we do not always do justice to our country brethren whose merits are less conspicuously exhibited than those of the great city physicians and surgeons, such especially as have charge of large hospitals.”



“You have not learned all that art has to teach you, but you are safer practitioners than many of those whose names we hardly mention without a genuflection. I had rather be cared for in a fever by the best taught among you than by the renowned Fernelius or the illustrious Boerhaave, could they come back to us from that better world where there are no physicians needed, and, if the old adage can be trusted, not many within call.”

“The community is very intelligent with respect to a great many subjects — commerce, mechanics, manufactures, politics. But with regard to medicine it is absolutely ignorant, and never finds it out.”

“Two years ago, in a lecture before the Massachusetts Historical Society, I mentioned this receipt from Sir Kenelm Digby for fever and ague: Pare the patient’s nails; put the parings in a little bag and hang the bag around the neck of a live eel and place him in a tub of water. The eel will die and the patient will recover. Referring to this description in the course of the same lecture, I said: ‘You smiled when I related Sir Kenelm Digby’s prescription with the live eel in it; but if each of you were to empty his or her pockets would there not roll out from more than one of them a horse-chestnut, carried as a cure for rheumatism?’ Nobody saw fit to empty his or her pockets, and my question brought no response.”

“You must take a community just as it is and make the best of it. You wish to obtain its confidence; there is a short rule for doing this which you will find useful — deserve it. But to deserve it in full measure you must unite many excellencies, natural and acquired.”

“To get business you must really want it. I think I have known more than one young man whose doctor’s



sign proclaimed his readiness to serve mankind in that capacity, but who hated the sound of the patient's knock; and as he sat with his book or his microscope felt exactly as the old party expressed himself in my friend Mr. Brownell's poem: 'All I axes is to be let alone.'

"The public is a very incompetent judge of your skill and knowledge, but it gives its confidence most readily to those who stand well with their professional brethren, whom they call upon when they themselves or their families are sick, whom they choose to honorable offices, whose writings or teachings they hold in esteem."

"You will remember of course always to get the weather-gauge of your patient. I mean to place him so that the light falls on his face and not on yours."

"The patient has no more right to all the truth you know than he has to all the medicine in your saddlebags, if you carry that kind of a cartridge-box for the ammunition that slays disease. He should get only just so much as is good for him." — *Oliver Wendell Holmes*.

"No men despise physic so much as physicians, because no men so thoroughly understand how little it can perform. They have been tinkering with the human constitution four thousand years in order to cure that many diseases. The result is that mercury and brimstone are the only two specifics they have discovered. All the fatal maladies continue what they were in the days of Paracelsus and Galen. *Opprobria Medicorum!* It is true that each disorder has a thousand prescriptions, but not a single remedy." — *Colton*.

"A wealthy doctor who can help a poor man and will not without a fee has less sense of humanity than a poor

ruffian who kills a rich man to supply his necessities. It is something monstrous to consider a man of a liberal education tearing out the bowels of a poor family by taking for a visit what would keep them for a week." — *Addison*.

"As a student, Pasteur's energy and enthusiasm were boundless. Not even on Sundays did he rest from his chemical studies; and some idea may be formed of his industry by the fact that on one of these days of rest he actually succeeded in the difficult task of preparing no less than sixty grams of phosphorus from bones which he had bought at the butcher's, an operation which lasted from four in the morning until nine o'clock at night." — *Frankland*.

"Pasteur presented himself for the entrance examination at the École Normale. Although he passed and was admitted he only obtained the fourteenth place. This position did not satisfy him, and he determined to withdraw and work for another year and then go in for the examination a second time. For this purpose he went to Paris to study, and the following year, in October, 1843, he again submitted to examination and gained the fourth place." — *Frankland*.

"I think you might dispense with half your doctors if you would only consult Dr. Sun more, and be more under the treatment of those great hydropathic doctors, the clouds!" — *Henry Ward Beecher*.

"Judge a physician by his cures." — *Paracelsus*.

"The physician should cure his patients, for dead men pay no bills." — *Dr. T. Denman*.

"That physician will hardly be thought very careful of the health of others who neglects his own." — *Rabelais*.

"A sickly, infirm look is as disadvantageous to a physician as that of a rake in a clergyman or a sheepish look in a soldier." — *Croxall*.

"The physician must generalize the disease and individualize the patient." — *Hufeland*.

"I had reasoned myself into an opinion that the use of physicians, unless in some acute disease, was a venture, and that the greatest practitioners practised least upon themselves." — *Sir Wm. Temple*.

"Some fell by laudanum, and some by steel;  
And death in ambush lay in ev'ry pill."

*Anonymous.*

"The patient can oftener do without the doctor than the doctor without the patient." — *Zimmerman*.

"Physicians mend or end us,  
Secundum artem; but although we sneer  
In health — when sick, we call them to attend us  
Without the least propensity to jeer."

*Byron.*

"Some shrewd old doctors have a few phrases always on hand for patients that will insist on knowing the pathology of their complaints without the slightest capacity of understanding the scientific explanation. I have known the term 'spinal irritation' to serve well on just such occasions, but I think that nothing, on the whole, has covered so much ground and meant so little, and given such profound satisfaction to all parties, as the magnificent phrase 'congestion of the portal system.'"—  
*Holmes.*

“The piercing caustics ply their spiteful power,  
Emetics wrench, and keen cathartics scour,  
And deadly drugs in double doses fly,  
And pestles beat a martial symphony.”

*Household Words.*

“If you cannot acquire and keep the confidence of your patient it is time for you to give place to some other practitioner who can. If you are wise and diligent you can establish relations with the best of them which they will find it very hard to break. But if they wish to employ another person, who, as they think, knows more than you do, do not take it as a personal wrong. Your estimate of your own ability is not the question. It is what the patient thinks about it. — *Oliver Wendell Holmes.*

“If there happen,” says Dr. Oliver Wendell Holmes, “to be among my audience any persons who wish to know on what principles the patient should choose his physician, I should give them these few principles to think over :

“Choose a man who is personally agreeable, for a daily visit from an intelligent, amiable, pleasing, sympathetic person will cost no more than one from a sloven or a boor, and his presence will do more for you than any prescription the other will order.

“Let him be a man of recognized good sense in other matters, and the chance is that he will be sensible as a practitioner.

“Let him be a man who stands well with his professional brethren, whom they approve as honest, able, courteous.

“Let him be one whose patients are willing to die in his hands, not one to whom they go in trifles and leave

as soon as they are in danger, and who can say therefore that he never loses a patient.

“Do not leave the ranks of what is called the regular profession, unless you wish to go farther and fare worse, for you may be assured that its members recognize no principle which hinders their accepting any remedial agent proved to be useful, no matter from what quarter it comes. The difficulty is that the stragglers organized under fantastic names, in pretentious associations or lurking in solitary dens behind doors left ajar, make no real contributions to the art of healing. When they bring forward a remedial agent like chloral, like bromide of potassium, like ether, used as an anæsthetic, they will find no difficulty in procuring its recognition.”

“There are those whose minds are satisfied with a decillionth dilution of the scientific proof. No wonder they believe in the efficacy of a similar attenuation of *brionia* or *pulsatilla*.” — *Oliver Wendell Holmes*.

“Physicians are happy men because the sun makes manifest what good success soever happeneth in their cures, and the earth buryeth what faults soever they commit.” — *Nicocles*.

“I used to wonder why people should be so fond of the company of their physician, until I recollected that he is the only person with whom one dares to talk continually of one’s self without interruption or contradiction or censure.” — *Hannah More*.

“Wonderful is the skill of the physician: for the rich man he prescribeth various admixtures and compounds by which the patient is brought to health in many days at an expense of fifty pounds; while for the poor man for the same disease he giveth a more common name and

prescribeth a dose of oil which worketh the cure in a single night, charging four pence therefor." — *J. Townley*.

"The most essential part of a student's instruction is obtained, I believe, not in the lecture-room, but at the bedside. Nothing seen there is lost; the rhythms of disease are learned by frequent repetition; its unforeseen occurrences stamp themselves indelibly in the memory; before the student is aware of what he has acquired he has learned the aspects, course, and probable issue of diseases he has seen with his teacher and the proper mode of dealing with them so far as his master knows it." — *Oliver Wendell Holmes*.

"The coördinate and classified results of empirical observation in distinction from scientific experiment have furnished almost all we know about food, the medicine of health, and medicine, the food of sickness. Nothing but vulgar experience has taught us to reject the potato-ball and cook the tomato. So of most of our remedies. The sub-chloride of mercury is the great British specific. The protochloride of mercury, corrosive sublimate, kills like arsenic, but no chemist could have told us it would be so." — *Oliver Wendell Holmes*.

•

## THE PULPIT.

“I preached as never sure to preach again,  
And as a dying man to dying men.”

*Richard Baxter.*

WITH the world before him, and all its occupations to choose among, a young man must have higher, nobler aims than the amassing of wealth, or even than the gaining of a comfortable livelihood, who devotes his life to the ministry. And the young man who contemplates this step is generally assured, as all thinking persons must be sooner or later, that there *are* nobler aims in life than gaining wealth and securing comfort. It is a common saying among superficial people that there can be no religion, no philanthropy, on an empty stomach — that we must make our own circumstances easy before we can minister to the wants of others, or give serious thought to a future life. But we need only a pair of eyes and a little common sense to see that this is a fallacy. Not only does the history of the world disprove it, but our own observation disproves it. If you are fifteen years old and know fifty persons, it is almost a certainty that you know some one who, having little, divides his mite to make others happy; who, in poverty, perhaps in want, finds more comfort in his abiding faith than he could find in millions of treasure.

In most of the chapters of this book I have tried to point my young readers toward the roads to fame and fortune. But that is not because I believe fame and fortune to be the chief ends of man. I have no such belief. We must take the world as we find it, and it is



inevitable that out of every hundred young men at least ninety-five will go into trades or business or secular professions for the purpose of making a livelihood ; and the careers of the ninety-five demand more attention in examining the roads to worldly success than the higher work of the five who are willing to deny themselves for the good of their fellows.

To go honestly and fairly into the clerical profession (and you will not wish to enter it any other way), you must be "called" to the ministry. You must feel in your very heart and soul that the Creator has set you aside (foreordained you, as a Presbyterian would put it), to be one of the shepherds of his flock. That your mission in life is to deny yourself, to throw all thoughts of profit or self-advantage to the winds, and to give your best energies toward the spiritual welfare of your fellows.

And here is a grave danger at the very outset. How are you to know that you are so "called" ? Being human, you have feelings and emotions. How are you to know that the leaning you have toward the ministry is not merely emotional ? In some natures the sudden religious emotion is an excellent thing ; but in your case it may be dangerous, leading you to take an important and irrevocable step while your religious excitement prevents you from giving the subject such calm consideration as it should have. To make my meaning clearer, I shall use those familiar church terms, conviction and conversion. What I desire to impress upon you is, that if you have been convicted on Tuesday, and converted on Wednesday, you are not to make up your mind on Thursday that you are "called" to the ministry. Much less important questions you would not undertake to settle offhand ; take time to think.

What are you to do ? Be sure in the first place that



HENRY WARD BEECHER.

Henry Ward Beecher, one of the most celebrated of American pulpit orators, was born in Litchfield, Conn., in 1813, and died in Brooklyn, N.Y., in 1887. In the first ten years of his ministry he was the pastor of churches in Lawrenceburg and Indianapolis, both in Indiana; and in 1847 he became the first pastor of Plymouth Church, in Brooklyn, which he made famous by his sermons. Mr. Beecher occupied the first rank as preacher and orator, and ably edited *The Independent* and *The Christian Union*. He was a warm abolitionist, and addressed vast audiences in England in 1863 when it was thought desirable to explain the American situation to the British public.



no boy or young man is able to define the difference between what may prove a transitory desire or emotion, and a real "call" from on high. You must have help. You will hardly be contemplating such a step unless you are in the habit of going to your room and asking for help from the Source of all wisdom. Go there early and often. Go to your parents. You may not think it, but they know more about you than you know about yourself. Go to your clergyman. He will give you good advice and help you to dissect your own mind. Take time, and then take time again.

I shall not set before you any of the familiar tables showing what is the average salary of a clergyman in this country. The standard that I set for you is higher than that. It is true that in almost every Protestant denomination there are twice as many ministers as churches. If the Almighty has really set his finger upon you, that will not deter you for an instant. Begin to estimate what your probable earnings will be, and I do not think much of your "call." If it is a parlor-car call that you have, throw it away, bury it. You may not be able even to travel in the cattle train. Then you must be ready to walk the ties. Your faith must be such that when dinner is lacking you can feel that it is your Master's will, and for his glory and your eternal good. If you are laying plans for advancement, thinking that your cousin in the seminary and your uncle in the Home Mission Board can perhaps help you into one of the big city churches, then beware; think harder and oftener than ever. It is not salary that you must look for, but the opportunity to do good; and the opportunity often lies in the by-ways and hedges. You must

"Leave all meaner things  
To low ambition and the pride of kings."

Is this too high a standard I would set for you? beyond the strength of mortal man? It is not. The world is full of clergymen who are animated by these noble ideals, and often you must look in the most obscure places for them. Not only in all the Protestant denominations, but in the Catholic and Hebrew Churches as well, there are thousands of such men. They are, they must be, the happiest men on earth. They live to do good. Sickness and death have no terrors for them; dying is but going to their reward. Pain, sorrow, hunger, cold, are only temporary chastenings sent by Him who doeth all things well. What is wealth compared with such a condition? It is such a preacher as this that I would see you, or no preacher at all.

Sectarianism is the last thing that need give you any anxiety. You will most likely remain in the church of your ancestors, but do not fall into the error of believing that your church contains all the good and that the others are groping in darkness. Every Christian church is full of good, and every one has some points that we of other denominations think are bad. You are a Baptist, let us suppose. Have you ever stopped to think why it is that you are a Baptist? Have you inquired into the doctrines and beliefs of the other churches, and deliberately concluded that the Baptist is the best of all? It is very improbable. Our doctrines usually come to us by the accident of birth. We follow in the footsteps of our ancestors. It is not a light matter for a man to give up the faith of his fathers; and before doing it, or even contemplating such a thing, you should see some definite good to be gained. When you grow older you will see so much good in every Christian church that unless you are narrowminded you will learn to respect them all.

If the prospect of poverty, toil, self-denial, instead of discouraging you, fills you with new ardor, with fresh desire to consecrate your life to the service of your Master, that is strong evidence that such is your mission. In that case, when your mind is fully made up, you cannot begin too soon. You are a member of your church, as a matter of course. After you have had a few talks with your minister on the subject, and he sees that you are in earnest, and knows that you are worthy, you will soon begin to occupy a little different position in the church. Your friends will know that you intend to study for the ministry. You are not ashamed of it, are you? When you are old enough you will teach a class in the Sunday-school. That is part of your early training, increasing your knowledge of the Scriptures. Then you will take part in the prayer-meetings, and that is more training. You cannot learn too early to "think on your feet." Many a man who has a great flow of language when writing at his desk, is dumb before an audience. A preacher must both write and talk. But be careful about your early public prayers and speeches. It is useless to be able to speak unless you have something to say. A prayer, remember, is no place for a display of eloquence. It was once written of a celebrated clergyman that he "then delivered one of the most eloquent prayers ever addressed to a Brooklyn audience." And it was a just rebuke, for the prayer was manifestly addressed to the audience rather than to the Almighty. Earnestness is of more account in the pulpit than eloquence. The most eloquent speaker cannot make an audience believe what he says unless it is plain that he believes it himself. But be not one of those who "think that they shall be heard for their much speaking." A dozen words at the right time and place, and not too

often repeated, are often better than a sermon. Leave your hearers always wishing for more; not longing for you to reach the end. Above all things, do not let your manner indicate that because you are studying for the ministry, you think it your duty to advise and reprove your elders and betters. The best speakers grow tiresome when heard too often; and he is a rare young man who is as wise as his grandfather.

Now we reach the question of your education. I have taken the ground throughout this volume that in preparing for almost any calling a collegiate education is desirable, but not absolutely necessary. But I cannot tell you that if you desire to study for the ministry. A clergyman without a classical training is a blind man groping along with a stick. There have been preachers, and good preachers, without such a training, but in different times and under different circumstances from ours. In these days you can hardly preach in a Canadian logging camp, on a Western ranch, in a mining town, or in a sailors' bethel, without having some highly-educated man in your audience. He may be an Oxford or Cambridge man, or carry the duel marks of some German university on his face, or be a valedictorian from one of our own colleges. And if you are an ignorant man you will show it, and he will see it in a minute, and before night his comrades will know it, and your influence will be weakened at once. The people who hear you preach will always expect you to know more than they do; and you must know more, or take the consequences. It is only fair that when you pretend to teach them you should be able to teach them. This is only one reason out of many. Ask your clergyman to explain to you why you should not ascend the pulpit steps without a thorough classical training.



The preparatory training for college is almost certainly within your reach. With the public schools everywhere, and, in the more remote places, your pastor to help you with the Latin and Greek and higher mathematics, you can hardly fail in that if you are in earnest. And no other young man can go through college with as little expense as the candidate for the ministry. Every denomination has one or more colleges directly or indirectly connected with it, in which candidates for the ministry of that church are educated at little expense to them — sometimes at scarcely any expense at all. And there are scholarships and loan funds and aids from Educational boards. No matter what your denomination, your pastor will tell you which is the most available college in your case, and what financial assistance you may expect, if necessary, from the college and the various boards, and where to apply for detailed information.

Up to this point your education is the same as any other young collegian's, except that the expense is made lighter for you. Here you reach the theological seminary stage. It is in the theological seminary that you get the technical training which specially fits you for the ministry, after you have acquired your classical training. The courses differ somewhat in the seminaries of different churches, but in general an attendance of three years is required. The main instruction in every theological seminary is in biblical studies, the Scriptures being interpreted, of course, from the standpoint of the church with which the seminary is connected.

While in the theological seminary, especially in the second and third years, the student is given frequent opportunities to preach in neighboring churches, and so acquires a practical knowledge of his coming duties. The tuition in some cases is entirely free and in other

cases is merely nominal, and the price of board is reduced to the lowest possible basis. The student finds upon the moment of his entering the seminary that his fellows are there for serious work, not for complimentary degrees. The fine dressing, the expensive clubs, and the costly mode of life in general that are only too familiar in some of the larger colleges are entirely wanting. Everything is simple and scholastic, though the students mingle to some extent with the collegians in other departments, and do not neglect such athletic sports as are necessary for their health. "Muscular Christianity" is not wanting. The student who begins with the high ideals that I have recommended to him will find little in any of the seminaries to offend his nobler feelings.

With at least one school of doctrinal instruction for each division of the Christian Church, it is manifestly impossible to give even an outline of the studies and regulations in all. I have selected the Princeton Theological Seminary, the principal seminary of the Presbyterian Church, as an example. Though no two seminaries are conducted on precisely the same lines, this will give a good idea of the usual course of theological instruction. Under the heading "The Design of the Seminary" the Princeton catalogue gives so plain and exhaustive an explanation of the uses of such schools, of the reasons for their existence, that I copy it here entire. Do not be afraid of it and think that it "looks dry." If you are interested in such matters you can scarcely read anything that in a few lines will give you as good an idea of the value of such training; and it applies as well to one denomination as to another.

## THE DESIGN OF THE SEMINARY.

In the "Plan of the Seminary" as adopted by the General Assembly its design is stated in the following paragraphs :

"The General Assembly, after mature deliberation, has resolved, in reliance on the patronage and blessing of the Great Head of the Church, to establish a new institution consecrated solely to the education of men for the gospel ministry, and to be denominated *The Theological Seminary of the Presbyterian Church in the United States of America*. And to the intent that the true design of the founders of this Institution may be known to the public, both now and in time to come, and especially that this design may, at all times, be distinctly viewed, and sacredly regarded, both by the teachers and the pupils of the Seminary, it is judged proper to make a summary and explicit statement of it.

"It is to form men for the gospel ministry, who shall truly believe, and cordially love, and therefore endeavor to propagate and defend, in its genuineness, simplicity, and fulness, that system of religious belief and practice which is set forth in the Confession of Faith, Catechisms, and Plan of Government and Discipline of the Presbyterian Church; and thus to perpetuate and extend the influence of true evangelical piety and gospel order.

"It is to provide for the Church an adequate supply and succession of able and faithful ministers of the New Testament; workmen that *need not be ashamed*, being qualified *rightly to divide the word of truth*.

"It is to unite in those who shall sustain the ministerial office, religion and literature; that piety of the heart which is the fruit only of the renewing and sanctifying grace of God, with solid learning: believing that religion without learning, or learning without religion, in the minister of the gospel, must ultimately prove injurious to the Church.

"It is to afford more advantages than have hitherto been usually possessed by the ministers of religion in our country, to cultivate both piety and literature in their preparatory course; piety by placing it in circumstances favorable to its growth, and by cherishing and regulating its ardour; literature, by affording favorable opportunities for its attainment, and by making its possession indispensable.

"It is to provide for the Church, men who shall be able to defend her faith against infidels, and her doctrines against heretics.

“It is to furnish our congregations with enlightened, humble, zealous, laborious pastors, who shall truly watch for the good of souls, and consider it as their highest honor and happiness to win them to the Saviour, and to build up their several charges in holiness and peace.

“It is to promote harmony and unity of sentiment among the ministers of our Church, by educating a large body of them under the same teachers, and in the same course of study.

“It is to lay the foundation of early and lasting friendship, productive of confidence and mutual assistance in after life among the ministers of religion; which experience shows to be conducive not only to personal happiness, but to the perfecting of inquiries, researches, and publications advantageous to religion.

“It is to preserve the unity of our Church, by educating our ministers in an enlightened attachment, not only to the same doctrines, but to the same plan of government.

“It is to bring to the service of the Church genius and talent, when united with piety, however poor or obscure may be their possessor, by furnishing, as far as possible, the means of education and support without expense to the student.

“It is to found a nursery for missionaries to the heathen, and to such as are destitute of the stated preaching of the gospel; in which youth may receive that appropriate training which may lay a foundation for their ultimately becoming eminently qualified for missionary work.

“It is, finally, to endeavor to raise up a succession of men, at once *qualified for* and thoroughly *devoted to* the work of the gospel ministry; who, with various endowments, suiting them to different stations in the Church of Christ, may all possess a portion of the spirit of the primitive propagators of the gospel; prepared to make every sacrifice, to endure every hardship, and to render every service which the promotion of pure and undefiled religion may require.”

Do not these able men set as high a standard as I have recommended to you? “To make every sacrifice, to endure every hardship.” No seminary undertakes to fit its students for churches that pay large salaries. They require brains, but you must use your brains for the good of mankind, not for your own profit or advance-

ment. The requirements for admission are high, as you shall see :

#### TERMS OF ADMISSION.

Every person applying for admission into the Seminary must produce satisfactory written testimonials that he possesses good natural talents, and is of a prudent and discreet deportment, that he is in full communion with some regular church, and that he has passed through a regular course of collegiate study ; or, wanting this, he must submit himself to an examination in regard to the branches of literature usually taught in such a course.

When a student has been received under the care of a presbytery, he has passed with approbation his examination on the studies usually pursued in college, a certificate from the presbytery declaring this fact is received as sufficient to answer every requisition in regard to testimonials.

Students unable to comply with these entrance conditions may nevertheless, on filing a certificate from their presbytery, or the ecclesiastical body under whose care they are as candidates for the gospel ministry, expressing its approval of their entrance upon theological study without further literary preparation, be received into the Seminary, enrolled with the classes and granted the usual certificate on completing the full course ; but such students cannot be technically accounted students in full standing, or on completing the course, be enrolled as technically graduates of the institution.

When a student who has been connected with any other theological seminary seeks admission into this, he must produce testimonials of his good standing and regular dismissal, before he can be received.

These various testimonials must be presented to the Corresponding Secretary and Assistant Registrar, Dr. Vos, before the applicant for admission can be allowed to matriculate.

The Seminary course is designed to cover three years of special preparation for the ministry, and a full curriculum for the three years is provided, on the completion of which the certificate of graduation is conferred. Students are strongly recommended, when preparing for the Seminary at colleges where opportunity to do so offers, to make a beginning in Hebrew, Theism, Evidences of Christianity, General Apologetics, New Testament Greek, Patristic Greek and Latin, or the like, before entering the Seminary.

Those whose previous work in such departments of study is fairly equivalent to any portion of the Seminary curriculum will be provided with advanced work, and thus enabled to materially increase their theological knowledge, and, if they desire, to enter upon a course of study designed to qualify for the degree of Bachelor of Divinity.

#### EXPENSES.

There is no charge for tuition or room rent. The only fees required of students are \$10 for the general expense fund, to pay the cost of warming and lighting the public rooms, the attendance of servants, etc., and \$2 for the use of the library and reading-room. Board is furnished at the refectory for \$3 per week; in clubs at about the same rate; in private families for from \$3 to \$5. Fuel costs from \$8 to \$15 per annum, and washing \$1.50 per month. Total of necessary expenses, outside of text-books, for the Seminary year, \$150.

Books can be bought at a liberal discount, and some class-books are provided in the library. Gaslight may be had in the dormitories at the option of the student.

#### AID.

Deserving students, whose circumstances require it, receive aid to a limited extent from the scholarships of the Seminary, and from special funds contributed for this purpose. Students needing aid should apply first to the Board of Education through their presbyteries. If the Board's scholarship should prove insufficient, an additional sum will be granted from the scholarship funds of the Seminary. Application for aid from the scholarship fund should be made to Dr. DeWitt.

There is also a loan fund, founded in part by Rev. Dr. William A. Holliday, and in part by the Princeton Association of the Fifth Avenue Presbyterian Church of New York City, for the accommodation of students who prefer to borrow what they need for a limited time, rather than to receive it as a gift.

Students are advised not to engage in teaching or other distracting occupations during term time, with a view to self-support. This is found to interfere seriously with their attention to study, and is intended to be rendered unnecessary by the aid which they may receive from the aforementioned sources.

## THE ACADEMIC YEAR

opens on the third Thursday of September, and closes on the Tuesday before the second Saturday in May.

The matriculation of new students takes place in the Oratory, Stuart Hall, at 11 o'clock, A.M., on the first day of the session. The opening address is delivered in Miller Chapel at the same hour on the following day.

There are no poor clergymen, except those who by their own acts have lowered their self-respect. Many have barely enough to buy their daily bread, but the bread always comes. "I have been young, and now am old; yet have I not seen the righteous forsaken, nor his seed begging bread." A man who devotes his life to the good of his fellows, and trusts in God, is never poor. If you have any concealed desire for wealth, position, fame, the pulpit is no place for you. You should know your own heart thoroughly before you take this step. If you are not willing to suffer for your Master, to starve for Him, to die for Him in a wayside hut, step down to a lower plane and make room for one who is. If you have this willingness, this all-sufficient faith, the richest and most powerful man in the world must envy you.

"If we do well here, we shall do well there:

I can tell you no more if I preach a whole year."

*John Edwin.*



## “HERE AM I; SEND ME.”

“No man taketh this honor to himself but he that is called of God, as was Aaron.” — *Hebrews* v, 4.

“A large part of the labors of every settled ministry lies outside of the pulpit.” — *T. L. Cuyler*.

“The manner of the call is widely and obviously different. The call to the priesthood came through hereditary descent, — it ran in the blood, — but in the New Testament we find no trace of any such arrangement for the Christian Church. The manner in which men are called to the New Testament ministry corresponds to the nature of the New Testament dispensation. The evidences of this call are internal rather than external; they are to be found in inward qualifications, not in outward marks.” — *Wm. G. Blaikie*.

“The dream of the scholar about his own future changes, I think, as the years go on with him, if he be a true man.” — *Phillips Brooks*.

“He who lives well is the best preacher.” — *Cervantes*.

“If any work ever demanded the whole of one’s mind it is that of the preacher of God’s word.” — *Skinner*.

“Much reading and thinking may make a popular preacher, but much secret prayer must make a powerful preacher.” — *Berridge*.

“A good preacher is one who preaches both with experience and unction, who speaks right out from the heart to the heart.” — *Heard*.



“ There is nothing like simplicity in preaching.” — *Buck.*

“ Character is, of course, the primary condition of power in a preacher. From the time of St. Paul to the present no genuine headway has been made by a minister of the Gospel who has lacked sincerity, manly courage, straight-dealing—in short, a genuine respect for what is noblest in the universe. The preacher’s business is to build characters; and surely his task is hopeless unless he himself be sound, and evidently so, from centre to circumference. The second quality I would mention is a passion for practical results. Probably no mistake is more common among clergymen than the disposition to allow energy to terminate with declamation. Carlyle, we must admit, was right in placing the man of action far above the man of words. And his judgment applies to the ministry as well as to any true calling. Indeed, every atom of force expended by the preacher who has a message for his generation will have reference, whether in the pulpit or out of it, not to the admiration of the passing crowd, but to practical achievements that will stand the test of time.” — *Rev. George Francis Greene.*

“ The defects of a preacher are soon espied. Let a preacher be endowed with ten virtues and have but one fault, that one fault will eclipse and darken all his virtues and gifts, so evil is the world in these times. A good preacher should be able to teach plainly and in order; he should have a good head, a good power of speech, a good voice, a good memory, and should know when to stop; he should be sure what he means to say and should study diligently. He should be ready to stake body and life and goods and glory on its truth; and he must suffer himself to be vexed and criticised by everybody.” — *Martin Luther.*

“The preacher has just to press the grapes and give the cup into the hearer’s hands. He has not to educate, he has not even primarily to inform; but he has to arouse, to impel, to awaken.” — *Yorke*.

“If we had more painful preachers in the old sense of the word, that is, who take pains themselves, we should have fewer painful preachers in the modern sense, who give pain to their hearers.” — *Trench*.

“I love a serious preacher, who speaks for my sake and not for his own, who seeks my salvation and not his own vainglory; he best deserves to be heard who uses speech only to clothe his thoughts, and his thoughts to promote truth and virtue.” — *Massillon*.

“No preacher was ever made by rules; you may have a bagful of excellent tools, but if your fingers be unskilled your instruments are of little use. Does the spade make the gardener? Does the easel make the painter? A man may read guide-boards and finger-posts all the days of his life and yet never take a walk.” — *Dr. Joel Parker*.

“A vapid preacher may entertain by the hour; a smooth preacher may amuse; a denunciatory preacher may produce a transitory excitement; but such is the power of God and the wants of men, that though their hearts naturally hate God’s truth they will crowd the sanctuaries where it is instructively and fearlessly urged.” — *Spring*.

“Children, men-servants, and maid-servants attend our churches; to these we must preach; these need our preaching, not the learned; it is the poor young people and the simple with whom we have to do. To these we must come down.” — *Martin Luther*.

“Preaching and practice should concur, like parallel lines.” — *Sacheverell*.

“Preach for the poor, and your preaching will always serve for the rich.” — *Father Matthew*.

“The curse of the age is fine preaching; it is morbid and pestilential. To attempt to say fine things in the pulpit is a solemn sin; and fine sermons like all other finery are very evanescent in their influence. Let the fine-sermon system die out as soon as possible, useless as it is to God and man.” — *Hood*.

“The best preaching is that which sends people to the word of God, which assists but does not supersede the closest study of God’s word, and which points out to the people how they are to roll away the stone and lay open the pure spring of heavenly truth.” — *Heard*.

“Were I but assured that by my preaching I had converted but one soul unto God, I should take therein more spiritual joy and comfort than in all the honors and offices which have been bestowed on me.” — *Archbishop Williams*.

“That which makes the clergy glorious is to be knowing in their profession, unspotted in their lives, active and laborious in their charges; bold and resolute in opposing seducers and daring to look vice in the face though ever so potent and illustrious; and lastly, to be gentle, courteous, and compassionate to all.” — *South*.

“There is nothing noble in a clergyman but burning zeal for the salvation of souls; nor anything poor in his profession but an idle and worldly spirit.” — *Law*.

“We hold that God’s clergy are a state that hath been and will be as long as there is a church upon earth, nec-

essary by the plain word of God himself : a state whereunto the rest of God's people must be subject, as touching things that pertain to their souls' health.” — *Hooker*.

“A clergyman should be a very philosophic man, of general learning, great sanctity of life, and the most exact good-breeding.” — *Steele*.

“The famous sermon as preached on the mount is worth more than all the priestly homilies in the world ; did ministers only preach and practise the doctrines contained therein their example and influence would convert this world of sorrow and tears into a Paradise of joy.” — *Linen*.

“The nearer sermons are to the possibility of rendering through the medium of the press, the further they are from that indescribable but all-captivating and enchanting charm which defies translation to paper.” — *Hood*.

“A sermon, like a tool, may be polished until it has no edge.” — *Orton*.

“Never forget that the end of a sermon is the salvation of the people.” — *M'Cheyne*.

“He is a slave who is under the necessity of writing two sermons every week.” — *Rev. A. Abbott*.

“One sermon preached from a brief is worth three sermons read from a manuscript.” — *Theodore Tilton*.

“Where there is a real call to the ministry, along with the sympathy with Christ in his great enterprise of love, there will be a readiness for those habits of life and modes of service that tend to its accomplishment.” — *Blaikie*.

“A genuine aspirant to the ministry must have the power of contemplating what has been described as the main part of his life-work and of setting himself to accomplish it accordingly. Young men at the beginning of the race cannot know experimentally all its difficulties and temptations, and cannot therefore have before them all the circumstances that would enable them to say intelligently that they would never tire of it. But this is not necessary. It is enough that so far as they know themselves and know the work, and know the promises and helps that are available for it, their hearts go with it, and that recognizing this state of mind as a gift of God, they feel the necessity of continually asking Him to renew and deepen it, so that as time rolls on they may like the work better and live for it more.” — *Blaikie*.

“It ought not to be concealed that the experience of life that will come to you by and by will bring with it temptations which you may feel but feebly now. To renounce the world with its aims and prizes is often an easier thing for a young man in the independence of youth than for one whose position is complicated by domestic relations, and who is sometimes to desire for the sake of others what he could quite freely renounce for himself. But under any circumstances, an aspirant to the ministry must see to it that he is content with God’s help to lead a life which cannot well fail to be one of much labor and self-denial, that he foster those habits of self-command which shall preserve him from the snares of indolence and fitfulness, that, like Moses, he can turn aside from the allurements of wealth and pleasure, feeling that the humble path he has chosen has rewards of its own far higher than those of Egypt, that he has faith enough in himself to keep his mind at ease in temporal things in the belief that God will supply all his needs according to

his riches in glory by Christ Jesus ; that he has a special abhorrence of all those vices, such as sensuality, deceit, or dishonesty, a single act of which, openly committed or disclosed, may be enough to disgrace if not ruin his character and usefulness forever ; and above all, that he is so alive to the necessity of maintaining this spirit and these habits of life by daily fellowship with the fountain of life that they form the subject of his most earnest supplications at the throne of grace.” — *W. G. Blaikie*.

“When you are a placed minister — and a young man of your talent will not be kept long waiting — you will know how to avoid all the faults which you so heavily and so justly condemn in others. You will never be guilty of the crime of preaching an old sermon. You will never waste on golf the precious hours that should be given to pulpit preparation. Tennis matches and afternoon tea parties will not lure you from the path of duty. Every sermon of yours will show the very latest results of English and foreign scholarship. Closely as you study no one will ever accuse you of neglecting pastoral visitation. You will also find time to write a number of works on theological subjects. You will take a prominent part in reviving the Liberal party in your neighborhood, and will exemplify your maxim that a good preacher must always be a good public man.” — *From “Letters to a Divinity Student,” by John Watson et al.*

“If a man who consciously is not called assume the clerical office, no sanction that may be given to him by a fallible church can reverse the fact and make him a true shepherd of Christ’s sheep. His career must be unblessed, unhallowed — a profane handling of sacred things ; the intrusion of a sheep and a robber into the sheepfold, to whose voice the sheep will not listen.” — *Wm. G. Blaikie*.

“ The common application of the words ‘ calling ’ and ‘ vocation ’ to men’s ordinary occupations shows that even there, in virtue of certain considerations, some men are providentially designed for particular modes of life. These considerations have a certain resemblance to those which determine a call to the Christian ministry. A person is understood to have a vocation to a profession or pursuit when three elements are combined — inclination, ability, and opportunity ; — and the more decidedly that all these point to that particular pursuit the more clear is his vocation. A man with ability to be an artist, with a passion for art, with the opportunity of learning and prosecuting the profession, may be held to have a calling for it, subject of course to the risk of error under the head of ability, which must at first be doubtful, and of difficulties under the head of opportunity, which, however, may be designed only to call forth the energy and resoluteness of his character. If we give a full scriptural interpretation to the terms it may be sufficient to say that these three elements, inclination, ability, and opportunity, constitute the call to the Christian ministry.” — *Wm. G. Blaikie.*

“ Some plague the people with too long sermons ; for the faculty of listening is a tender thing, and soon becomes weary and satiated.” — *Martin Luther.*

“ But we must not leave the matter in this form, for these terms may be understood in a variety of ways. For example, inclination. Ministerial life may be attractive to young persons of particular temperament in some secondary aspects ; they may have a liking for a life of quiet usefulness ; their literary taste may be attracted by the clergyman’s little study and theological library ; they may have a personal attachment for some who are engaged in the pursuit ; or they may feel that more than



any other it fulfils their ideal of a desirable life. Their ability may have been tested by the usual methods in the preparatory classes, and by the crowning evidence of having passed the final examination with *éclat*. Their opportunity may have been determined so far by the absence of any other pursuit which it would have been natural for them to fill; by the encouragement and approval of their friends, and by the probability of their obtaining a suitable sphere of labor. Now, there are, no doubt, instances, not a few, of young men entering on preparation for the ministry with views as indefinite as these, who, either in the course of their studies, or in the first grapples with the difficulties of the ministry, have been led to a far more profound sense of its responsibility, and have proved themselves to be able and successful ministers of Jesus Christ. Not seldom a man, while sitting in his place in divinity class-rooms, has for the first time heard the voice of the Master asking, 'Whom shall I send?' and for the first time been moved in spirit to reply, 'Here am I; send me.' A man may receive his real call to the ministry even after he has been formally in the office. But let it be understood that whatever the grace of God may afterward affect, a mere leaning toward the ministry, based on such secondary grounds as we have now adverted to, cannot be regarded as a call to it." — *Wm. G. Blaikie*.

"Many a meandering discourse one hears in which the preacher aims at nothing — and hits it." — *Whately*.

"The minister should preach as if he thought that, although the congregation owned the church, and had bought the pews, they have not bought him. His soul is worth no more than any other man's, but it is all he has, and he cannot be expected to sell it for the salary. The terms are by no means equal. If the parishioner

does not like the preacher he can go elsewhere and get another pew, but the preacher cannot get another soul.” — *Chapin*.

“The Christian ministry is the worst of all trades, but the best of all professions.”

“He who the sword of Heaven will bear  
Should be as holy as severe.”

*Shakespeare.*

“This appellation of parson, however depreciated by clownish and familiar use, is the most legal, most beneficial, and most honorable title which a parish priest can enjoy.” — *Blackstone*.

“Oh, the unspeakable littleness of a soul which, intrusted with Christianity, speaking in God’s name to immortal beings, with infinite incitements to the most large and fervent love, sinks down into narrow self-regard, and is chiefly solicitous of his own honor.” — *Channing*.

## THE REPORTER'S DESK.

"I'll put a girdle round about the earth  
In forty minutes."

*Shakespeare.*

NEWSPAPER reporting is an ever-open door for the young men who are fitted for it. Who are fitted for it, mark you ; and it is the requisite of fitness that keeps the door constantly open. The thousands of newspapers require tens of thousands of reporters, and there is always a chance for good ones. But with equal certainty good ones must be ever ready to give way to better ones, and better to best. It is the best reporters only who can hope for permanent positions.

In no other calling does a young man find his level so rapidly. In a month, often, sometimes in a week, a new reporter may be ranked among the dullards who do the drudgery for small pay, or among the "crack" men who do the best work and make more money than most of the editors. This possibility of immediate success is one of the great attractions of the work, almost as great as the opportunity to see life, to take part in passing events, to make the acquaintance of famous people.

The reporter's work shows at once, and is criticised daily both by his associates and by his competitors. Whether it is good work or bad, he cannot hide it — that is, that part of his work which is given to the public. A large share of the work he does the public know nothing about, however, and it is in those hidden parts that it takes him longer to establish a good reputation. Many a new reporter has sprung at a bound to what

seemed to be the very top of the ladder, by writing unusually brilliant or witty articles, and at the end of a few weeks has been dropped incontinently because he was not trustworthy, because he could not be depended upon. No brilliancy, no rapidity or activity on the part of a reporter can make up for the want of integrity and care. That is so plain that it requires no explanation; but some of the other points of a good reporter I can make clearer by explaining the management of a large newspaper office.

The editor-in-chief is the head of everything in the editorial rooms, and his word is law. How much he in turn is controlled by the owners of the establishment is a matter of no moment to the reporters. He can appoint a reporter or discharge one, but he seldom does. It is to guiding the policy of the paper that he generally devotes himself, with the aid of his editorial assistants, and routine affairs are left to his subordinates.

Next in executive importance is the managing editor. He has entire charge, subject to the orders of the editor-in-chief, of *all* the news of the paper — domestic, foreign, political, social, telegraphic, or mail; city news as well as country news. He must know what is happening, or likely to happen, in the entire world, and see that the news reaches the office. He also can make or break a reporter, but he usually leaves that to the city editor. To relieve the managing editor of part of this onerous duty, the collection of news of the city is made a department by itself, under the immediate charge of the city editor.

Now we reach the man you must deal with if you wish to become a reporter — the city editor. He has entire charge of all the reporters, who may number anywhere from twenty to sixty. If you have no better way you

can approach him by sending in a card. He will almost certainly see you, and you can tell him briefly who you are, what you want, and what your qualifications are. Remember that while he talks to you he will "size you up" very rapidly; he has had long experience at that, and your manner will tell him more than your words. Be absolutely honest and candid with him in all that you tell him about yourself.

That is one way of reaching the city editor's ear. Sometimes even an application made by mail secures a trial for a man, but that is not as good as a personal application. The city editor is like other human beings, and if you can in any way induce him to feel some slight interest in you, you will have a better chance. If you have a friend in the office who will introduce you to the city editor, so much the better; or if you know any outside friend of his who will give you a letter to him, or if you can get a letter from some prominent person whose name carries weight, that is good.

No amount of influence, however, can do more than secure a start for you, a trial. When you get the start you must stand or fall on your own merits. We will suppose that by some one of these means you have reached the city editor, and that he has "taken you on" at a salary of \$15 a week. In the large offices that is about the usual fate of a beginner. Later on you may perhaps become a "space man," and make much more money.

If it is a morning newspaper office you are told to report at ten o'clock in the morning, the hour at which the city editor himself arrives. Many of the other reporters are there, but not all, some being engaged at "the departments," at police headquarters, or in the larger suburban towns. One or two assistants to the

city editor have been present for an hour or more going carefully over the other newspapers of the city, making notes of everything that is likely to demand the attention of the city department on that day.

With these notes before him, and aided by his record of coming events, the city editor immediately begins to make out his schedule, or "assignment list," for the day. No reporter is ever sent out to hunt at random for news; each one is sent after some particular matter. The city editor is the sole judge in selecting the right man for each piece of work; and when he has made up his list for the day (which of course is subject to changes or additions at any moment) it reads much like this:

MONDAY, JANUARY 1, 1900.

Meeting of Railroad Commission . . . .	Smith.
Congressional Committee, Astor House . .	Brown.
See Mayor about New Tax Rate . . . .	Johnson.
Corner-stone of St. Mary's Church . . . .	Davis.
Election officers, 73d Regiment . . . .	Bryant.
Removing Snow from Streets . . . .	Colwell.
Follow up Murder Case in Cherry Street .	Rogers.
Special . . . . .	Williams.
New Tramway in Church Street . . . .	Crane.

As you sit waiting for your turn to come you will notice that the city editor calls each of these reporters up separately, and explains to him what his assignment is and what is expected of him, without in any case giving him definite instructions about how much he is to write. He may give a general idea that the subject should be "worth" half a column, or a column and a half; but he does not know in advance how interesting or important the subject may prove, and the space it should

occupy is to be determined by the reporter's judgment, subject to the opinion of the night editors. Sometimes news is scarce, and sometimes it comes with a rush. And a subject that is "worth" two columns on Monday may be dismissed with three inches on Tuesday.

You will notice, too, as you learn to distinguish the good reporters from the poor ones, that the good men ask very few questions about their assignments. They take the order with a ready "Yes, sir," and away they go, and the city editor can safely dismiss those subjects from his mind, for they are provided for. The poor reporter, on the contrary, particularly the man who is dissatisfied with the work and thinks he should have had something better, gives a great deal of trouble with his questions. What time is the meeting to be held, he asks; and will he need any admission tickets, and shall he write a column about it, and will a Fourth-avenue car take him up there, or what time does the train start? Such unnecessary questions are always very annoying to the city editor, and new reporters should be careful to avoid them.

But I am not forgetting your own anxiety, as you sit waiting for your first assignment. Men come and go, morning changes to afternoon, and you begin to think yourself overlooked. The city editor has not forgotten you, he is only waiting; not waiting for something of sufficient importance for your great talents, but for some matter so trifling that a new man can be trusted with it. It is not uncommon for new men to sit idle for several days before getting an assignment. When *your* first one comes, it will probably be so very unimportant that it will hurt your feelings, — you are to go and ask some politician how he feels on his forty-ninth birthday; or to attend a routine meeting about which you can write two



lines; or to step down to the wharves and see whether the ferryboats are delayed by fog and ice.

These trifling assignments are your trial trips; it is through them that the city editor learns whether he can safely trust you with better ones. He watches the few lines of "copy" you turn in, and he soon knows whether you use great care in spelling all proper names correctly, whether you are careful about the dates and all the facts. He wants no fine writing from you; only facts, plainly told. If you spell door d-o-a-r, he will only smile at it, because the proof-readers attend to that; but if you spell Brown B-r-o-w-n-e, he will make unpleasant remarks, because one of your first duties is to spell proper names correctly.

It may not be for weeks or months, perhaps, but sooner or later your chance is sure to come, through these little assignments. Things that look small sometimes turn out to be very large. Some night, perhaps, when you are looking after the fog in the river, you find that the police have a lost boy in one of the ferry-houses; and he is the son of some prominent person, and having read too many wild-west stories he has armed himself with knives and pistols, and has come to the city to kill Indians. And now he is homesick and hungry, and his thirst for blood is quenched with tears.

If you have what newspaper men call "a nose for news" you see in an instant that there is the basis of a pretty little article that any man, woman, or child will read with interest; and you get all the facts carefully, and write the article, and it goes into the paper, and next morning you have the satisfaction for the first time of hearing your editor say to you, "That was a very neat little story of yours, Mr. Smith."

That is not proof positive, but it is an indication, that

you have "a nose for news," a faculty that is absolutely necessary to your success as a reporter, and one of the most difficult of all faculties to describe. He who has it grasps in a moment the important points of a subject, and gives them prominence; he sees anything humorous, anything that will interest his readers, anything out of the common ruts. To some men this is a natural gift, but others can acquire it by study and experience. The best way to acquire it is to study the best news and descriptive articles in the newspapers. Not merely to read them, but to study them carefully, analyze them, pick out the important points and see how the writer has treated them, determine what personages in the article the writer must have seen and talked with, and what his other sources of information probably were. This is a valuable study for any young man who wishes to become a reporter. Without "a nose for news," a reporter can never become more than a drudge; with it, if he has the other necessary qualifications, success is more than probable.

Having given even so slight an indication as this of your fitness for the work, you soon find yourself trusted with more important matters. Your assignments are better. You are in the upward path, and every proof of ability that you give helps you along. You have improved your opportunities, and within a month you may be doing the best work in the office.

Even then, however, you are only on trial. No matter what your ability, no matter how sensitive your "nose for news," nor how untiring your industry, you have still to convince your editors that you can be depended upon under all circumstances. They must know that what you write is correct and true in every particular, — in names, in dates, localities, circumstances, — and that no influence

whatever could move you to distort the facts. They must feel assured that your work is done faithfully, conscientiously ; that your facts are obtained at first hand ; that no one could bribe you or coax or drive you from your duty. Without this reputation in his office, the ablest man in the world would have no chance to become a successful reporter.

The first days and weeks are always the hardest for a young reporter. He is among strangers, both in the office and out of it ; probably he does not know the ins and outs of the city ; he is shy about approaching people ; and although his work is unimportant it gives him a great deal of anxiety. But as he succeeds in the profession everything becomes easier and more pleasant. He becomes acquainted with his associates, he has a better class of work to do, he has no hesitation in asking any proper question of anybody, he knows just where to go for information, he makes friends, and the work becomes a pleasure. And he makes much more money.

The question of pay is always an important one. In this description of the management of a newspaper office, as far as it concerns the reporters, I have taken for my model the office of the New York "Sun." In all the large morning newspaper offices the system is practically the same, though the details may differ. New reporters are almost invariably started as "salaried men," and generally at about \$15 a week, because in their inexperience they could make nothing "on space," which means being paid for what they write. After a new reporter has learned something, and has proved himself an able and trustworthy man, and knows the city and the prominent people in it, he is allowed to "go on space." The space men are generally the best reporters, and make the most money. They would not work for

the pay of even the best salaried reporters. They receive their "assignments" in the usual way, and are paid by the column, not strictly for what they write, but for what they get into the paper; generally about \$8 a column. When they are sent to investigate a subject that proves to be worth no space at all they are paid by the hour for their work. Average "space" reporters in the large cities make from \$25 to \$50 a week, and occasionally even more than the larger sum.

Whether you wish to follow this profession as a permanent occupation, or merely to take it up while you are preparing for something else, you will find the following suggestions of great advantage to you:

Never be a dog in the manger. Where you are sent by your paper, twenty other reporters will be sent by their papers. You will often, by accident or otherwise, be in possession of some fact in the case that the others do not have. Unless it is of such a character that you are in duty bound to preserve it for your own paper, do not refuse to share it with the others. Do not try to "beat" them in routine news matters. It is more likely that they will "beat" you. The golden rule applies to news as well as to other matters.

From the first day that you become a reporter, make it a point to know your city thoroughly — the city and its suburbs, the streets, car lines, railroads, ferries, the departments, public buildings, public men. Some reporters are perfect directories in this matter, and it is an inestimable advantage.

Never call yourself a journalist. Real reporters and editors call themselves reporters or newspaper men, never journalists. A "journalist" is always derided by the working members of the profession. It is sometimes said that newspaper men do the work and draw the pay,

while "journalists" stand down by the street door waiting to borrow a dollar.

"When I'm not thank'd at all, I'm thank'd enough;  
I've done my duty, and I've done no more."

*Henry Fielding.*

### A NEWSPAPER MAN'S TRAINING.

THE three lectures by the late Charles A. Dana, on "The Modern American Newspaper," "The Profession of Journalism," and "The Making of a Newspaper Man," contain in a small compass nearly all that the young aspirant for journalistic honors need know in advance. Below are given a number of extracts from these lectures, the first being from "The Making of a Newspaper Man":

"The newspaper is an article of primary necessity. You must have your breakfast, but you must have your newspaper too. Without it we don't know what has happened in the world, we don't know what new ideas, we don't know what shocking events, we don't know what well-founded or what fantastical hopes are looming up before the minds of the masses of men. We don't even know who is married.

"The newspaper profession is certainly a learned profession in one sense. It is a profession in which the utmost amount of learning can be put to use, but at the same time I am sorry to say that there are newspapers in which learning is very sparingly applied.

"A newspaper is very much like human nature: it is right sometimes, it is wrong pretty often, but on the whole there is no question that the newspaper is not only a needful institution, but that it is a useful, advantageous, and beneficial institution.

"Just now the business of making newspapers is going through a revolution; it is passing through changes of a very remarkable nature. These changes are due first to

the invention of new printing machinery, which makes it possible to publish the large editions and the large newspapers that we see all around us. Before these machines were invented it was not possible to do this, and the old-fashioned press that could turn out six or seven hundred copies a day from the hands of the printer was the best there was in the world. Now the most important presses can turn out at one impression large sheets of eight, ten, or twelve pages, and deliver twenty thousand finished papers in an hour. We hear sometimes figures more surprising, but that is about the maximum of safe and good work. When I was in the 'Tribune,' thirty years ago, we had to employ men to count the papers after they were printed, and it was a very important duty. If they made a mistake of any moment there would be trouble. But now there is no mistake possible. The papers are handsomely folded and they are laid down and counted, so that the dealer picks out his pile, certain that he has got just what he bought.

"All printing paper that is used in newspapers is made out of wood, and when you pick up your paper in the morning to look at, the probability is that you are picking up a piece of spruce tree from Norway, or that you have got hold of a piece of spruce taken out of the Adirondack country or wherever in North America spruce timber can be found.

"The cost of paper for making newspapers, which thirty years ago was 12 cents to 20 cents a pound, has steadily declined until now we buy it for  $2\frac{1}{4}$  cents a pound.

"I should say that the actual capital needed and employed in carrying on one of these big establishments is not less than one million of dollars. That is necessary not to pay the natural losses of an enterprise just begun, but to carry on the regular business; to run the work at



a reasonable cost so that you are not swallowed up by expenses that might be avoided. If you ask how much it will cost to establish a new journal entirely, why then you have got to have a great deal more money; but a million is the lowest for which a suitable outfit can be procured.

“What kind of a newspaper will you make? That question may be divided into two parts: first, will you make a newspaper for sensible people? or will you make a newspaper for fools? I would not be understood as intimating that there is anything unworthy or below anybody's dignity in making a newspaper for fools. In the first place there is impressive evidence to show that the fools form a large part of every community; and it is perfectly right to provide for fools in special newspapers; that duty, as you may have noticed, is extensively and conscientiously performed by gifted and conspicuous individuals; and I have heard that some of them make money by it. For my part, however, I find more entertainment in making a newspaper that tries to be of the other kind.

“Allow me a word as to the education that the young journalist should work for. In the first place he should learn everything that it is possible for him to know. I never saw a newspaper man who knew too much except those who knew too many things that were not so. I am myself a partisan of the strict, old-fashioned classical education. The man who knows Greek and Latin, and knows it, — I do not mean who has read six books of Virgil for the college examination, but the man who can pick up Virgil or Tacitus without going to his dictionary, and the man who can read the Iliad in Greek without boggling, and if he can read Aristotle and Plato so much the better, — that man may be trusted to edit a newspaper.

“But above all he should know his own language, the English language. The more you understand it, the more you get down into the depths of it, the more familiar you are with the roots, the complications, and the developments of it, the more you will look at it with wonder and admiration. The man who is going to publish a daily manual of news and facts and ideas and truths, or even lies, in English, should know that language thoroughly. Otherwise he may sometimes say what he does not mean.

“There are a great many sciences of the present day that the young newspaper man ought to learn. He ought to know the practical sciences above all, especially chemistry and electricity. History he should know too, particularly American history, the American Constitution and constitutional law. About political economy I do not speak so emphatically. Carlyle said it was the dismal science, and I have noticed that a great many young men who had studied it carefully, and who could discuss it with great emphasis, did not always seem to know so much themselves. But it is there and it must be attended to, no doubt.

“The decline in the cost of making newspapers has not been attended with a decline in the salaries of the men employed, but rather by an increase of them. The writers, correspondents, reporters, are better paid than they were five years ago.

“I know of one of the most distinguished newspapers in the country, which publishes perhaps an actual edition of 60,000 on week days, but on Sundays it sells 230,000 or 250,000, mostly, as they think, on account of the pictures. Now, I am an old-fashioned expert. I do not believe that so many pictures are going to be required for any great portion of the next century. It is a passing fashion. It seems to me that it has gone by already

to a considerable extent. I asked Mr. Whitelaw Reid one day what was his opinion, and he said he was against these pictures, that they did not add anything to the purpose of the newspaper, which is to convey intelligence and enlighten thought.

"In the organization of a newspaper there are three kinds of men who are of special value besides the business manager, who is necessarily of the greatest importance. I refer now to three kinds of the intellectual workers, and the first of them I desire to mention is the reporters. A very good reporter can earn \$100 a week, and I suppose that in any well-organized newspaper office there are perhaps thirty capable men whose pay will average from \$40 to \$60 per week and whose duty is simply reporting. Then there are many others of the sort of reporters who skirmish around and are employed to-day by one paper and to-morrow by another, and are paid for the matter they deliver.

"The qualifications of the reporter you cannot estimate too highly. In the first place he must know the truth when he hears it and sees it. There are a great many men who are born without that faculty, unfortunately. But there are some men that a lie cannot deceive; and that is a very precious gift for the reporter, as well as for anybody else. The man who has it is sure to live long and prosper; especially if he is able to tell the truth which he sees, to state the fact or discovery that he has been sent out after in a clear and vivid and interesting manner.

"The invariable law of the newspaper is to be interesting. Suppose you tell all the truths of science in a way that bores the reader, what is the good? The truths do not stay in the mind, and nobody thinks any better of you, because you have told the truth tediously. The telling must be vivid and animating."

The following paragraphs are from Mr. Dana's lecture entitled "The Modern Newspaper":

"It will not be excessive if I put down the expenditure of such a paper as the New York 'Tribune' or the New York 'Herald' at an average of from \$25,000 to \$35,000 a week. The newspaper must be founded upon human nature. It must correspond to the wants of the people. It must furnish that sort of information that the people demand or else it never can be successful. The first thing that an editor must look for is news.

"A great deal has been said of late years about the sort of education that the journalist must be provided with, and some of the colleges have even provided professorships of journalism. On the other hand, I heard a very able and successful journalist the other day, who said that special studies in an university would be of no use whatever, that the only possible school for journalism was a newspaper office. That is a question worth looking at.

"The educated man must be qualified to discuss the questions which the clergyman has to discuss. He must be qualified to judge of the science of the physician, and he must even be able to rise to those sublime intellectual complications which make a great lawyer. The journalist must be an all-round man. He must know whether the theology of the parson is satisfactory, whether the physiology of the doctor is genuine, and whether the law of the lawyer is good law or not. His education accordingly should be exceedingly extensive. If possible he should be sent to college. He should learn everything that the college has to teach; but what is more important, he should be sent to the school of practical life, of active and actual business.

"College education is of high value; the life of the family, whatever cultivates the affections, is of higher

value; but the actual contact with business, the understanding of the rules of business, and the means and methods of business, I think, are quite as necessary to the newspaper man, so that after he has got through college, after he has had the best school education that his father and his friends can give him, how is there any chance for special instruction in journalism to be added to his college course? how is the professor who teaches journalism, who sits up in his chair and delivers generalities on the subject, going to help forward the ambitious young man who is anxious to lay hold of one of the great prizes — and there are great prizes — that are to be drawn in this intellectual lottery? I do not see how college instruction in journalism can be of any adequate, practical use.

“I have written down a few principles which occurred to me for the benefit of young newspaper men:

“1. Get the news, get all the news, and nothing but the news.

“2. Copy nothing from another publication without perfect credit.

“3. Never print an interview without the knowledge and consent of the party interviewed.

“4. Never print a paid advertisement as news matter. Let every advertisement appear as an advertisement; no sailing under false colors.

“5. Never attack the weak or defenceless, either by argument, by invective, or by ridicule, unless there is some absolute public necessity for so doing.

“6. Fight for your opinions, but do not believe them to contain the whole truth or the only truth.

“7. Support your party if you have one, but do not think that all the good men are in it or all the bad ones outside of it.

“8. Above all, know and believe that humanity is advancing; that there is progress in human life and human affairs, and that as sure as God lives the future will be greater and better than the past or the present.”

The following extracts are from Mr. Dana's lecture “The Profession of Journalism”:

“The number of young men who are looking at this new profession, which for want of a better name we call the profession of journalism, is very great. I suppose I receive myself every day, taking one day with another, half a dozen letters from men, many of them college graduates, asking for employment and the opportunity for showing what is in them. Of course they cannot all get on the same paper. Now and then one obtains a place, but generally the rule that is observed in all newspaper offices is, that the boys who begin at the beginning are taken up step by step, in accordance with their faculties and their merits. The boys who begin at the bottom come out at the top. At the same time these boys do not all start out with the best outfit, that is to say, with the best education, and I have known very distinguished authorities who doubted whether high education was of any great use to the journalist. Horace Greeley told me several times that the real newspaper man was the boy who had slept on newspapers and ate ink. Although I served him for years and we were very warm in our personal relations, I think he always had a little grudge against me because I came up through a college.

“As for these alleged departments of journalism in the colleges I have not found that the student or graduate who had pursued that special course instead of pursuing other studies was of any great avail in the practical news-

paper work that he had been trying to learn. It seems to me that the colleges generally are rather branching out too much, until they are inclined to take the whole universe into their curriculum, and to teach things which do not exactly belong there.

“ When you begin to practise the profession of the newspaper man, then is the best time to begin to learn it, and while you are in college, with the daily series of professors, and all the appliances of study that belong to the college, make the best of them and pursue vigorously those studies that give accuracy of learning and that give fidelity and accuracy in recitation. There is no question that accuracy, the faculty of seeing a thing as it is, of knowing, for instance, that it is two and a quarter and not two and three-eighths, and saying so — that is one of the first and most precious ends of a good education. Next to that I would put the ability to know how and where most promptly to look for what you do not know and what you want to know. ‘The great end of education,’ President Walker used to say, ‘is to be able to tell what you know;’ and he used to say that some bright men carried it so far that they were able to tell what they did not know; and thirdly, I would put Dr. Walker’s great object, being able to tell what you know and tell it accurately, precisely, without exaggeration, without prejudice, the fact just as it is, whether it be the report of a baseball game, or of a sermon, or of a lecture on electricity, whatever it may be, to give the thing exactly as it is. The man who can do that is a very well educated man.

“ As for the preliminary studies of the journalist, apart from the study of the ancient languages, whose importance, I think, cannot be overestimated, — and the reason why this importance in my judgment is so great is that they lie at the foundation of our own language, and the



man who does not know three or four of these old languages, or at least two of them — if he knows three, if he knows the old Teutonic all the better — the man who has not that knowledge does not really know the English language, and does not know its wonderful resources, all the subtleties and abilities of expression that are in it. Certainly without Greek and Latin no man knows English, and without Teutonic no man's knowledge of English is perfect.

“Certainly style, in its highest perfection, can never be acquired by practice. I do not believe, for instance, that everybody who should try to acquire a style such as the late Dr. Channing possessed could succeed in so doing. His style was perfectly simple, translucent throughout, without effort, never leaving you in any doubt as to the idea.

“The next thing that I would dwell upon would be the knowledge of politics, and especially of American politics. This is a very hard subject. Its history is difficult. Still it is indispensable to a man who means to fill an important place in journalism.

“I have often been applied to by friends who said, ‘Can’t you take this young man and give him employment?’ Then I will watch that young man for a month or so and see what it is that he takes up in the morning. If he takes up the newspaper and turns to the political part and is interested in that, why that is a good symptom of his intellectual tendencies. But if instead of that he picks up a magazine and sits down to read a love story, you cannot make a newspaper man out of him.

“What books ought you to read? There are some books that are indispensable — a few books. Almost all books have their use, even the silly ones; but there are some books that are absolutely indispensable to

the kind of education we are contemplating. And of all these, the most indispensable, the most useful, the one whose knowledge is the most effective, is the Bible. There is no book from which more valuable lessons can be learned. I am considering it now, not as a religious book, but as a manual of utility, of professional preparation and professional use to the journalist. There is no book like the Bible. When you get into a controversy and want exactly the right answer, when you are looking for an expression, what is it that closes the dispute like a verse from the Bible? Then everybody who is going to practise the newspaper profession ought to know Shakespeare. Considered as a writer, considered as a poet, considered as a philosopher, I do not know who can be named with him. Another ancient author who ought not to be neglected is John Milton.

“Do not take any model. Every man has his own natural style, and the thing to do is to develop it in simplicity and clearness.”

“If the newspaper is the school of the people, and if upon popular education and intelligence the success and prosperity of popular government depend, there is no function in society which requires more conscience as well as ability.” — *George William Curtis.*

“Even the correspondent of a newspaper has occasional scruples.” — *John Russell Young.*

“I have an especial admiration for the truly and thoroughly independent newspaper.” — *Murat Halstead*

## WRITERS AND THEIR BOOKS.

“ A Poet, Naturalist, and Historian,  
Who left scarcely any style of writing untouched,  
And touched nothing that he did not adorn.”

*Dr. Samuel Johnson's Epitaph on Goldsmith.*

THE enormous number of writers in the present generation need discourage no young man whose inclinations lead him toward literature as a profession. As there are more writers than formerly there were, so also there are more publishers, and more readers. The opportunities for a good writer are better now than they ever were before. It is only the poor writers who are hurt by keen competition.

For a young person to set out deliberately in his youth to train himself for the literary profession, to choose his studies with that end in view, to shape his reading in that direction, is not as common now as it was a century or two ago, when the conditions were entirely different. The modern idea, and in our times certainly the more correct idea, is that a training for any literary pursuit is at least a partial training for the business of writing. Indeed, a good training as a blacksmith, as a railroad conductor, as a fisherman, or expert knowledge of any other kind, is of great use to a writer. The public care more for a writer's evident knowledge of his subject than for his ability to do fine writing. Even in a poem or a novel the reader wants truth and facts.

There is little danger in advising any young man of average ability to try the experiment of writing, because he need spend neither time nor money in special prep-

aration for it. The training that he is pretty sure to receive for some other occupation is enough for a beginning, and the first glimmer of success will surely give him the inclination toward such special training as is necessary for the finished writer. A valuable part of a young writer's training consists in getting back the articles he has mailed to publishers. After he has passed the stage of believing that there is a conspiracy to keep him out of print, common sense begins to whisper that there is a reason for the failure; and he sets out to find the faults, and correct them.

To be a writer you must first have something to write about, and then have the ability to write. By the ability to write I mean the power to write good plain English and tell the truth. Let all your doubts and fears about genius or talent fly off on the winds. Truth is the master of them both. There would be no "genius" in Shakespeare if he did not tell the truth about persons and things, and tell it well.

No matter how commonplace your subject, you must know it well. You cannot tell your reader anything that you do not know yourself. In the smallest subject you will find more interesting material than you imagine, if you dig down to it. The very highway in front of your home is full of interesting facts. Is it a Macadam road? What is the principle upon which a Macadam or a Telford road is graded? How deep is the paving? What composes the first layer, the second, the third? What does it cost a mile? What kind of stone is used? And why is the broken stone called "the metal"? Or if you soar into the imaginative at the beginning, which is not the best plan, the people who travel over the road will supply some ideas, or the people who have travelled over it (where are they?), or the people who may travel

over it. But whether you write about the highway, or your front fence, or the tree in your back yard, be sure that you know all about it before you write. Accuracy is of more value to a writer than brilliancy.

“Why!” I hear you say, “I desire to be a writer, and what you advise me to try is no more than a school composition.”

That is true. Writing is a trade that you must learn like any other, but with the advantage that you need not at first give your whole time to it. In nearly every other calling you must risk everything, sink or swim; but writing you can take little by little, and grow up to it. The lawyer does not send his young student to argue an important case in court; you would not ask a medical student to attend you in sickness; how can you expect to become a great writer more quickly or more easily than you could become a great lawyer or a great physician? You must begin at the beginning, and be sure that there is much hard work before you.

Most writers would tell you that when you write anything you must rewrite and rewrite and rewrite it till it is as perfect as you can make it. My own opinion is that before you write on any subject you should have the matter so thoroughly laid out in your mind that your first draft of it is as nearly perfect as you can make it, — with a careful revision of the pages always, of course. But that is to a great extent a question of temperament. A celebrated novelist sitting at this desk not long ago told me that he had rewritten his first novel six times. Perhaps in that case his first draft was the best, for the public did not take very kindly to the sixth revision.

“I had a letter,” says Sir Walter Scott, in his diary, “from Jem Ballantyne, plague on him! full of remonstrance deep and solemn, upon the carelessness of Buona-

parte (his life of Bonaparte). The rogue is right, too. But as to correcting my style to the

“Jemmy, jemmy linkum feedle”

tune of what is called fine writing, I'll be hanged if I do.”

Again he says: “He (Campbell) is a great corrector, too, which succeeds as ill in composition as in education. Many a clever boy is flogged into a dunce, and many an original composition corrected into mediocrity.”

Do not deceive yourself with the belief that rewriting and rewriting is a sign of great industry. It is, on the contrary, a sign of indolence. Composition is done entirely in your brain; the writing it on paper is mere manual labor. A writer who takes the trouble to lay out his entire subject, in every detail, before he begins to write, is not compelled to rewrite. Temperaments differ widely in this matter, however, and you can tell only by experience which way, in your case, produces the better results.

Whatever you *do* write, at the beginning be very careful of. It is of great value—to you. Do not upon any account let it go out of your possession. Do not let any publisher have a chance to throw it away. Keep it securely in your desk for a month, or three months, then read it, and ten to one you will throw it away yourself. This applies with equal force to almost every man who ever wrote a line of copy. While a man is writing he knows what he desires to write, and it seems to him that he is writing it just as he wants it. At the conclusion the subject is still hot in his mind, and he cannot with a dozen readings tell whether he has written just what he intended. In a month the subject and the story are out of his mind entirely, and he can read his manuscript in cold blood, as he would read and judge the manuscript of a stranger. It is then that he sees the faults, and corrects

them. This is no contradiction of what I have told you about rewriting; this work is revision, not rewriting. This "salting down" a manuscript is of the utmost importance. Take your time to it; you are not an editor yet, with the printers hounding you for copy. A writer has no business to offer the public anything short of his best. A few days ago I read in the introduction to a book: "If I had had more time, it would be briefer and better. But life is short." The reader's life is equally short. Imagine your shoemaker bringing home your new boots, with the apology: "They are not very well made; if I had had more time they should have been made better. But life is short."

Now let us suppose that you have made the private beginning which I have suggested, and have written for practice a half-dozen articles of plain fact and description. You have served a long, long apprenticeship at the trade — nearly three months — and think it time to branch out as a journeyman. You desire, most likely, to begin real operations with a short story; and certainly the short story *does* offer great opportunities for a beginner, though a really good short story is one of the hardest things in the world to write.

I shall take very little of your time or my space with suggestions about your tools. Whether you write with a typewriter, a pen, or a sharpened stick; whether on linen bond or tea paper, makes little difference. It is the finished product that tells, not the tools it is made with. One of Conan Doyle's stories, written on the backs of torn envelopes, would not go begging, though one of yours, carefully done with typewriter on the finest paper, might come wearily homeward. But some tools are more convenient to handle than others. Experience will soon enable you to choose for yourself;



and meanwhile my own experience in such matters may be of use to you. I prefer a smooth paper, because the pen glides over it without friction. Small pages, because if for any reason a partly finished page is to be thrown away it makes less waste of time. Mine is flat cap, unruled, cut to sheets  $5 \times 6\frac{3}{4}$  inches. Arnold's writing fluid, because that never thickens, and soon grows jet black. A stub pen, but not too stubby; no patent inkstands or any patent desk furniture whatever. More important than all, perhaps, strong Manila envelopes (with the writer's name and address in the corner) made about half an inch larger each way than the sheets, to take them in without folding. Editors like sheets that have not been folded, and are prejudiced from the start (and very justly) against sheets that have been rolled. It ought to be made a misdemeanor to roll up manuscript intended for editors or printers. Nothing is more useful to a writer than envelopes that will take in his pages flat. When he writes anything long enough to be divided into chapters each chapter goes into a separate envelope, which is labelled, and so the writer, the publisher, and the printers are secured against any danger of mixing the pages.

But these are minor matters, hardly worth mention except for the sake of convenience. We will take up that short story. Having determined upon your plot and characters, you will do well to determine (before writing) to what publication you intend to offer it. Hardly any two publications use stories of precisely the same kind. And before reaching this conclusion, get copies of the leading magazines and the weeklies of national circulation, and *study* their stories. You will learn a great deal by this, and avoid many disappointments. Such publications nearly all pay well for short stories

that suit them. Keep your story down to 2,500 words in length, if possible, and under no circumstances let it go beyond 3,000 words. That length is suitable, as far as length goes, for almost any publication. Editors will often tell you that your story is too long. If an editor ever tells you that your story is too short you may indeed begin to think yourself a prodigy.

You will hardly begin to write a story without having noticed that there is a great difference between stories for young people and stories for adults. A story for boys, for instance, must be all action. The hero must be doing something every minute. If the writer goes into such dissections of character, such minute inquiries into motive, as the novelist may make, his boys go to sleep. The youthful mind is not yet prepared to receive and digest such things. You yourself, perhaps, read Shakespeare as a matter of duty rather than for pleasure. But before you have written many good stories, the very sight of his covers will make your eyes snap, and you will be prepared to call him something more than human.

Remember, above all things, no matter what the nature of the story, that the reader's interest is in the characters, not in the accessories. That is the same with boys as with men. As Sir Walter Besant puts it, in his "*Art of Fiction*," "The human interest must absolutely absorb everything else." If it is a railroad story, and the climax is a terrible crash, the interest is not in the locomotive, but in the man who operates it. An artist who paints a beautiful landscape takes care to include a human being, almost invariably; and the man excites an interest in the spectator that no trees, nor rivers, nor mountains, without some sign of human life, could excite.

When I mention Besant's "*Art of Fiction*," so many

quotations from it occur to me, precepts exactly adapted to your own case, or that of any young man who desires to write fiction, that to copy a fraction of them is impossible. In the next chapter I shall give enough extracts from it to show you that it is one of the very first books you should read. He gives a brief list of books that a young writer should not only read, but should analyze and examine. "Do not read them for the story," he says, "but slowly and carefully, to see how built up, and from what original germ or conception it sprang." The books he recommends are those that any one conversant with the subject must naturally recommend: Scott, Reade, "Silas Marner," "The Scarlet Letter." As an example of construction, James Payn's "Confidential Agent." Dickens and Thackeray are such matters of course that they need hardly be named. For a capital study of Southern character, read "Colonel Carter of Cartersville," by F. Hopkinson Smith. Robert Louis Stevenson's works, many of them, will give you fresh and vigorous English. Laboulaye's "Abdallah" will do you good. When your stories come back, as some of them inevitably will, you can find comfort in the words of Macbeth:

"Receive what cheer you may;  
The night is long that never finds the day."

You will find, when you read Besant's "Art of Fiction," that he lays great stress upon the plot. "The story is everything," he says. "Fiction without adventure, a drama without a plot, a novel without surprises — the thing is as impossible as life without uncertainty." But do not take him too literally when he says the story is everything. There must be a good plot, but a plot may be too intricate, too improbable. You can learn the

truth of this by reading one of Wilkie Collins' novels. It will interest you very much. Then as soon as you finish one of his, read another. Good, but not quite as good as the first. Then read a third, a fourth, and so on till you have read them all, one after another. Toward the end you will find them tiresome, good as they are. Notwithstanding his excellent characters (and he was very skilful in certain kinds of character-drawing), he depended too largely upon deep and improbable plots.

Two books that any writer, young or old, should be familiar with are "Trench on the Study of Words," and Richard Grant White's "Words and their Uses." They give valuable information about the derivations of many words; but their worth lies not so much in what they actually teach as in what they set you to thinking about. It is impossible to read either of them, if you are really in earnest, without becoming more careful and more accurate in the use of words. You cannot be too careful in the use of the English language. For forcible, sledge-hammer English, read the works of Charles Reade. For equal force, with more grace and polish, read the better works of Robert Louis Stevenson. Write solely in your own language, using no foreign words or expressions whatever. The bad habit of interlarding a story with French phrases came to us from England, where, on account of the proximity of the two countries, most educated people speak both languages. In this country comparatively few people speak or read the French language, and the use of French phrases is in very bad taste.

All of the celebrated novels combined form only a small, though a very agreeable, part of the "Book of Life," which must be any good writer's greatest study. You cannot read too much, or see too much, or learn too

much. The more languages you learn the better. The more you can travel the better. Never locate the plot of a story in a place that you are not familiar with; your ignorance of the ground becomes apparent in a moment. You must know both your places and your people.

I have not told you how to write the short story. That is the fork of the roads where our ways part. You must write the story, not I. And when you have written it, lay it away for a month and then take it out and see what you think of it when it is cold, — writing, perhaps, some more stories meanwhile. If you are not fully satisfied with it, you will find it more satisfactory to condemn it yourself than to let others condemn it. If you are of the patient, plodding kind, who can write a story over four or five times without thinking it worse each time, perhaps you can improve it by rewriting it. My own way in such cases is to throw it away and write a new one.

When it is done to your satisfaction, inclose it with as little folding as possible, and send it to the publication for which you have designed it, accompanied by a stamped envelope addressed to yourself for its possible return, and by a brief note to the editor, if you choose, asking him to return it if he does not find it available. The note is not really necessary in the case of a short story; the editor knows what the stamped envelope is for. You need say nothing about the price. Most of the standard periodicals have a fixed price, which they will pay you if they accept your story. Never offer it to the editor for nothing; if it is not worth the regular price it is not worth printing.

A large kettle of hot water takes longer to cool than a small one. If you venture upon a novel, keep it in your

desk till it is thoroughly cooled ; that is, till you have forgotten all about the plot and the characters, so that you can read it precisely as if it had been written by some one else. Then if you still like it, and are willing to be known as the author of it, learn from the advertisements what publishers are publishing books of about that kind. Select one, and write to him briefly, saying that you have a manuscript of such-and-such a character, of about so many words, and that you should be glad to send it to him for his inspection. He will almost certainly invite you to send it, and it will be read by his reader, because there is always a chance of some new writer's doing an unusually good thing. If it is very bad the first reader will condemn it after reading two or three chapters. If it gives any promise it will be read carefully by several readers. For even a first novel you should have a written contract with the publisher ; and if he agrees to give you a royalty of ten per cent. on the retail price you may be well satisfied. If he sells fifty thousand copies of your first book, he will willingly give you an advance of \$1,000 on your second. He is a business man, and will pay you exactly in proportion to what he can make out of your work. There is neither friendship nor prejudice in the matter. If your own brother were a publisher he would not publish your novel unless he thought it would sell.

What any man can make with his pen depends entirely upon himself and what he can do. To make large sums he must not only have the ability to give the public what it wants, but he must be industrious. The most popular authors make nothing when they do not write. The usual price paid by the magazines and literary and illustrated papers is one cent a word, or \$25 for a story of 2,500 words. A writer of established reputation can

command much higher prices. Hundreds of writers make large sums annually, and thousands make at least good livings. Those writers who succeed financially and turn to publishing their own works, or go into partnership with their publishers to make additional profit, usually come to grief in the end. Sir Walter Scott and Oliver Optic and Mark Twain are prominent examples of this.

“The Moving Finger writes ; and, having writ,  
Moves on ; nor all your pity nor wit  
Shall lure it back to cancel half a line,  
Nor all your tears wash out a word of it.”

*Omar Khayyám.*



## THE ART OF FICTION.

“CONSIDER for a moment how the world at large regards the novelist. He is in their eyes a person who tells stories, just as they used to regard an actor as a man who tumbled on the stage to make the audience laugh and the musician as a man who fiddled to make the people dance. This is the old way of thinking. And most people think first as they have been taught to think, and next as they see others think. It is therefore quite easy to understand why the art of novel-writing has always been by the general mass undervalued.” — *Sir Walter Besant*.

“As for the field with which this art of fiction occupies itself, it is, if you please, nothing less than the whole of humanity. The very first rule in fiction is that the human interest must absolutely absorb everything else. Some writers never permit anything at all in their pages which shall divert our thoughts one moment from the actors.” — *Besant*.

“The daily life of the world is not dramatic—it is monotonous; the novelist makes it dramatic by his silences, his suppressions, and his exaggerations. No one, for example, in fiction behaves quite in the same way as in real life; as on the stage if an actor unfolds and reads a letter the simple action is done with an exaggeration of gesture which calls attention to the thing and to its importance, so in romance, while nothing should be allowed which does not carry on the story, everything must be accentuated and yet deprived of needless accessory details. The gestures of the charac-

ters at an important juncture, their looks, their voices, may all be noted, for they help to impress the situation. Even the weather, the room, and the rain, with some writers, have been made to emphasize a mood or a passion of the hero. To know how to use these aids artistically is to the novelist exactly what to the actor is the right presentation of a letter, the handing of a chair, even the removal of a glove." — *Besant*.

"We come next to speak of the laws which govern this art. I mean those general rules and principles which must necessarily be acquired by every writer of fiction before he can even hope for success. Rules will not make a man a novelist any more than a knowledge of grammar makes a man know a language or a knowledge of musical signs makes a man able to play an instrument. Yet the rules must be learned, and in speaking of them one is compelled, so close is the connection between the sister arts, to use not only the same terms, but also to adopt the same rules as those laid down by painters for their students." — *Besant*.

"First and before everything else there is the rule that everything in fiction which is invented, and is not the result of personal experience and observation, is worthless. The characters must be real and such as might be met with in actual life, or at least the natural development of such people as any of us might meet." — *Besant*.

"A young lady brought up in a quiet country village should avoid descriptions of garrison life; the writer whose friends and personal experience belong to what we call the lower middle class should carefully avoid introducing his characters into society; a south-country man should hesitate before attempting to reproduce the

north-country accent. This is a very simple rule, but one to which there should be no exception — never to go beyond your own experience.” — *Besant*.

“Remember that most of the people who read novels and know nothing about the art of writing them recognize before any other quality that of fidelity: the greatness of the novelist they measure chiefly by the knowledge of the world displayed in his pages. The highest praise that they can bestow upon him is that he has drawn the story to the life.” — *Besant*.

“This being so, the first thing to be acquired is the art of description. It seems easy to describe: any one, it seems, can set down what he sees. But consider. How much does he see? There is everywhere, even in a room, such a quantity of things to be seen: far, far more in field and hid in mountain, and in forest and beside the stream are there countless things to be seen. The unpractised eye sees nothing or next to nothing. We must not only observe, but we must select. Here, then, are two distinct faculties which the intending novelist must acquire, viz., observation and selection.” — *Besant*.

“As for the power of observation, it may be taught to any one by the simple method adopted by Robert Houdin, the French conjurer. This method consists in noting down continually and remembering all kinds of things remarked in the course of a journey or walk or the day’s business. The learner on his return home should enter his notes in his commonplace book. There are places where the production of a note book would be embarrassing, say at a dinner party or a street fight; yet the man who begins to observe will speedily be able to remember everything that he sees until he can find an

opportunity to note it down, so that nothing is lost." — *Besant*.

"The materials for the novelist, in short, are not in the books on the shelves but in the men and women he meets with everywhere; he will find them where Dickens found them, in the crowded streets, the tram cars, the omnibuses, at the shop windows, in churches and chapels; his materials are everywhere." — *Besant*.

"Fidelity, therefore, can only be assured by acquiring the art of observation, which further consists of filling the mind with stored experience. I am quite sure that most men never see anything at all. I have known men who have even gone all around the world and seen nothing — no, nothing at all." — *Besant*.

"There are abundant materials waiting to be picked up by any one who has the wit to see them, lying at his feet and all around him. What is next required is the power of selection. Can this be taught? I think not. At least I do not know how, unless it is by reading. In every art selection requires that special fitness for the art which is included in the much-abused word 'genius.'" — *Besant*.

"All descriptions which hinder instead of helping the action, all episodes of whatever kind, all conversation which does not either advance the story or illustrate the characters, ought to be rigidly suppressed." — *Besant*.

"Closely connected with selection is dramatic presentation. Given a situation, it should be the first care of the writer to present it as dramatically, that is to say, as forcibly, as possible. The grouping and setting of the picture, the due subordination of description to the dialogue, the rapidity of the action, — these things, which

naturally suggest themselves to the practised eye, deserve to be very carefully considered by the beginner. In fact, the novel is like a play; it might be divided into scenes and acts, tableaux and situations, separated by the end of the chapter instead of the drop scene; the writer is the dramatist, stage manager, scene painter, actor, and carpenter, all in one. It is his single business to see that none of the scenes flag or fall flat; he must never for one moment forget to consider how the piece is looking from the front." — *Besant*.

"The next simple rule is that the drawing of each figure must be clear in outline, and even if only sketched must be sketched without hesitation. This can only be done when the writer himself sees his figures clearly. Characters in fiction do not, it must be understood, spring Minerva-like from the brain. They grow; they grow sometimes slowly, sometimes quickly. From the first moment of conception, that is to say, from the first moment of their being seen and caught, they grow continuously, and almost without mental effort. If they do not grow and become every day clearer they had better be put aside at once and forgotten as soon as may be, because that is a proof that the author does not understand the character he has himself endeavored to create. To have on one's hands a half-created being without the power of finishing him must be truly a dreadful thing. The only way out of it is to kill and bury him at once." — *Besant*.

"I have always thought, for instance, that the figure of Daniel Deronda, whose portrait, blurred and uncertain as it is, has been drawn with the most amazing care and with endless touches and retouches, must have become at last to George Eliot a kind of awful veiled spectre, always in her brain, always seeming about to reveal his

true features and his mind, but never doing it, so that to the end she never clearly perceived what manner of man he was nor what was his real character. Of course what the author cannot set down the reader cannot understand." — *Besant*.

"On the other hand, how possible, how capable of development, how real becomes a true figure, truly understood by the creator, and truly depicted! Do we not know what they would say and think under all conceivable conditions?" — *Besant*.

"The writer who has succeeded in drawing to the life, true, clear, distinct, so that all may understand, a single figure of a true man or woman, has added another exemplar or warning to humanity. Nothing, then, it must be insisted upon as of the greatest importance, should be begun in writing until the characters are so clear or distinct in the brain, so well known, that they hold to their part, bend their dialogue, and suit their action to whatever situation they find themselves in, if only they are becoming to them." — *Besant*.

"As for the methods for conveying a clear understanding of the character, they are many. The first and the easiest is to make it clear by reason of some mannerism or personal peculiarity, some trick of speech or carriage. This is the worst, as may usually be said of the easiest way. Another easy method is to describe your character at length. This also is a bad, because a tedious method. If, however, you read a page or two of a very good writer you will discover that he first makes the character intelligible by a few words, and then allows him to reveal himself in action and in dialogue." — *Besant*.

"Nothing is more inartistic than to be constantly calling attention in the dialogue to a gesture or a look, to

laughter or to tears. The situation generally requires no such explanation; in some well-known scenes which I could quote there is not a single word to emphasize or explain the attitude, manner, and look of the speakers, yet they are as intelligible as if they had been written down and described." — *Besant*.

"That is the highest art which carries the reader along and makes him see without being told the changing expressions, the gestures of the speakers, and hear the varying tones of their voices. The only writer who can do this is he who makes his characters intelligible from the very outset." — *Besant*.

"Let the student remember that unless the characters exist and move about in his brain all separate and distinct, living, and perpetually engaged in the action of the story, sometimes at one part of it and sometimes at another, he has got no story to tell and had better give it up." — *Besant*.

"As soon as the actors in the story become real in the mind of the narrator, and not before, the story itself becomes real to him." — *Besant*.

"The modern English novel, whatever form it takes, almost always starts with a conscious moral purpose. When it does not, so much are we accustomed to expect it, that one feels as though there had been a debasement of the art." — *Besant*.

"Just as in painting and sculpture, not only are fidelity, truth, and harmony to be observed in fiction, but also beauty of workmanship. It is almost impossible to estimate too highly the value of careful workmanship; that is, of style. Every one, without exception, of the great in fiction has recognized this truth. You will hardly find



a single page in any one of them which is not carefully, and even elaborately, worked up. I think there is no point upon which the critics of novels should place greater importance than this, because it is one which young novelists are so very liable to ignore." — *Besant*.

"There ought not to be in a novel, any more than in a poem, a single sentence carelessly worded, a single phrase which has not been considered. Consider, if you please, any one of the great scenes in fiction — how much of the effect is due to the style, the balanced sentences, the very words used by the narrator! There is, I know, the danger of attaching too much attention to style at the expense of situation, and so falling a prey to priggishness, fashions, and mannerisms of the day. It is certainly a danger; at the same time, it sometimes seems, when one reads the slipshod, careless English that is often thought good enough for story-telling, that it is almost impossible to overrate the value of style." — *Besant*.

"There is comfort in the thought that no reputation worth having can be made without attending to style, and there is no style, however ragged, which cannot be made beautiful by attention and pains." — *Besant*.

"Every scene, however unimportant, should be completely and carefully finished. There should be no unfinished places, no sign anywhere of weariness or haste; in fact, no 'scamping.' The writer must so love his work as to dwell tenderly on every page, and be literally unable to send forth a single page without the finishing touches." — *Besant*.

"I am in great hopes that one effect of the newly established Society of Authors will be to keep young

writers of fiction from rushing too hastily into print, to help them to a right understanding of their art and its principles, and to guide them into true practice of the principles while they are still young." — *Besant*.

"After all these preliminary studies there comes the most important point of all — the story. All the stories, they say, have been told already. There is no more room for invention: nobody wants any longer to listen to a story. One hears this kind of talk with the same wonder which one feels when a new, monstrous fashion changes the beautiful figure of woman into something grotesque and unnatural." — *Besant*.

"The story is everything. I cannot conceive of the world getting on at all without stories. Fiction without adventure, a drama without a plot, a novel without surprises, the thing is as impossible as life without uncertainty." — *Besant*.

"As for the story, then. And here theory and teaching can go no farther. For every art there is a corresponding science that may be taught. We have been speaking of the corresponding science, but the art itself can neither be taught nor communicated. If the thing is in a man he will bring it out somehow, well or badly, quickly or slowly. If it is not, he can never learn it." — *Besant*.

"Let us suppose that we have to do with the man to whom the invention of stories is part of his nature. We will also suppose that he has mastered the laws of his art, and is now anxious to apply them. To such a man one can only recommend that he should, with the greatest care and attention, analyze the construction of certain works which are acknowledged to be of the highest

rank in fiction. Among them, not to speak of Scott, he might pay special attention to the construction of Charles Reade's stories, to George Eliot's 'Silas Marner,' the most perfect of English novels; Hawthorne's 'Scarlet Letter,' Holmes' 'Elsie Venner,' or Black's 'Daughter of Heth.' He must not sit down to read them for the story, as uncritical people say. He must read them slowly and carefully, perhaps backwards, so as to discover for himself how the author built up the novel, and from what original germ or conception it sprung. Let me take another novel by another writer to illustrate my meaning. It is James Payn's 'Confidential Agent,' a work showing, if I am permitted to say so, constructive talent of the very highest order." — *Besant*.

"One more thing the student has to learn; let him not only believe his own story before he begins to tell it, but let him also remember that in story-telling, as in almsgiving, a cheerful countenance works wonders, and a hearty manner greatly cheers the reader and blesses the beginner." — *Besant*.

"Failure to hit the popular taste does not always imply failure in art." — *Besant*.

"All publishers are eager to get good work: they are prepared to consider manuscripts carefully — most of them pay men on whose judgment they rely, men of literary standing, to read and 'taste' for them. Therefore it is simply an obvious piece of advice that the writer should send his work to some good publisher; and it is perfectly certain that if the work is good it will be accepted and published." — *Besant*.

"Never, *never*, NEVER pay for publishing a novel." — *Besant*.

All the above extracts are taken from Sir Walter Besant's "Art of Fiction," a work which covers the ground so thoroughly that little more remains to be said upon the subject.

"Composition is the art by which ideas and mental impressions are conveyed in written language." — *Arlo Bates*.

"The student in the art of writing has to learn to suit his means to the ends sought. He must train himself to judge what manner of expression, of style, of treatment will best serve to transfer ideas from his own mind to that of the reader." — *Arlo Bates*.

"If you have supposed that the art of composition is one easily acquired, I beg you to lay aside that idea at the start. It is true that any person who has had an ordinary school training may write a poor letter or a badly bungled paragraph. Some even climb to respectable facility or superficial expression of ordinary ideas. To go beyond this, however, to arrive at being able really to write, to be capable of expressing with the pen genuine thoughts and real emotions, with the reasonable hope that these will reach the reader not entirely distorted out of all resemblance to what they were when they left the mind of the writer,—this requires labor long and strenuous." — *Arlo Bates*.

"Memorandum, March 29, 1836: Received of Messrs. Chapman and Hall, the sum of £29 for the two first numbers of the 'Pickwick Papers.' Charles Dickens." — *From the Papers of Charles Dickens*.

## THE PUBLIC SERVICE.

“When a man assumes a public trust, he should consider himself as public property.” — *Thomas Jefferson*.

“Public office is a public trust.” — *Charles Sumner, and others*.

“A CHANCE for everybody” briefly expresses the principle upon which the public service of this country is conducted. It is a truly democratic principle, and seems at first view to be the most equitable that could be adopted. You and I may have any office within the gift of the people if enough voters will give us their ballots. We may have any appointive office, except a few ambassadorships and similar positions requiring special talents and great reputation, if we can induce the appointing power to give us the appointment.

The choice by the people, through their ballots, we all believe in. It is one of our institutions, one of our dearest rights, unalterable, altogether beyond discussion. But when we consider our system of appointment to office we may, as good Americans, stop to ask whether it is fair to the appointee, however fair it may be to the public at large. We are to look at this question as it may affect you or any other young man who contemplates entering public life; and you doubtless know before I explain it to you that the great objection to holding an appointive office is our unwarranted “fidelity” to party. Under a Republican administration, appointees to even the minor offices must be Republicans, and Democratic incumbents must go, no matter how faithful or how competent they may have been; and it is precisely the same

the other way about — there is no difference between the parties in this respect.

I bring this to your notice at the start, so that before you even think of seeking or accepting any public office you may know what the prospects are.

The most certain prospect before you, in any public office, is the prospect that when your party goes out of power you will go out of office. “To the victors belong the spoils” is an ignoble, an unworthy saying, but it is too commonly acted upon. Such a state of affairs is not made necessary by our form of government. In England, which although a monarchy is almost as wholly under the control of the people as is our own country, there is no such system. There a young man who enters the public service does so with a reasonable assurance that he can remain in it for life, if he does his duty and makes no bad mistakes. A young man who can command sufficient influence is appointed, for instance, private secretary to one of the Colonial governors. He knows that he is then in the line of promotion, and the knowledge of what is before him makes him as careful in his conduct as a young clergyman must be. The Liberals cannot turn him out if he is a Conservative, nor the Conservatives if he is a Liberal. He knows that he can lose his place only “for cause.” After some years of such service, when he is thoroughly familiar with the duties of a governor, if he has proved his efficiency he is appointed governor of one of the smaller colonies — Bermuda, perhaps, or the Bahamas. There he can show his ability still further, and if there are no bad blunders in the way he goes on and on, to a little larger and more important colony each time. By the time he reaches such a post as Jamaica, with its salary of \$30,000 a year, he is knighted; and in old age he

returns to England with his title and the competence saved from his large salaries. That is something for him to look forward to all through life — an incentive to give the government the very best service he is capable of.

We have no such system in our own public service. The best that a man can hope for, in most cases, is to be employed when his party is "in," with almost a certainty of going out with it. He may alternate, but he can hardly hope for anything permanent. For this and many other good reasons I should be very reluctant to advise any young man to look to the public service for his bread and butter. It is true that we should have good men to fill our public offices; but under the system of party spoils it is impossible that the best men available should always be selected. If you are to become the upright, honorable, incorruptible man you should, provide yourself with a moral coat of mail before going professionally into politics.

On the other hand it would be improper to advise young men indiscriminately to avoid the public service. There are many circumstances under which public office is desirable. It is very doubtful whether ten years hence you would refuse a nomination with a reasonably sure election to Congress. But remember always that if you have a business or a profession anything that separates you from it for a term of years is a menace to it. Senator Chauncey M. Depew saw that clearly when he was a young man. He was just beginning his professional career when a desirable foreign appointment was offered him, with a much larger salary than he could then command at home. He was too wise, even then, to depend entirely upon his own judgment. He went to friends who were competent to advise and who felt an



interest in him, and after long reflection, and much to the surprise of his acquaintances, he declined the appointment. He followed the advice of his experienced friends, who knew the world better than he. "You may keep this position for four years," they told him; "but in four years a man is forgotten. When you come back your friends will be dead or scattered; new methods will be in vogue; you will come back a stranger in a strange land. Your professional practice of course will be gone. Unless you are willing to give up your profession and all your present prospects, and take your chances in politics for life, do not go." And he stayed at home and "stuck and dug," as he advised the young doctors to do years afterward; and the result shows that it was a wise conclusion. No very young man can be expected to realize how completely he is estranged, how entirely he must begin professional or business life anew, on returning after an absence of some years. And absence in Washington or Albany or Harrisburg is almost as dangerous in a financial way as absence in Europe.

If you are so strong morally and intellectually that you can raise your political associates and their methods up to your level, then you are needed in public life. There are such men, but too often they are set aside on account of their very moral strength and high ideals. There is just such a man within five miles of me at this moment. He was a Senator of the State in which I am writing. He was too honorable a man to do the disreputable work required of him by the ringmasters of his party, and at the end of his first term he was dropped. Highly respected by the people, he is dead in politics. Why do not the people reëlect such a man? perhaps you ask. Because their political "bosses" will not let them. And it is not much worse here than in your own neigh-

borhood. Ask your father whether in your county there is a "ring" in the predominant party that controls the nominations. If there is not, your county is an exception. That is one of the other reasons why, having more regard for your character than even for your professional success, I hesitate to advise you to go into politics. It is not flattering to our institutions, but it is the unhappy truth.

If your circumstances are such that you can "go into politics" without damage to yourself financially or in any other way you must know how to set about it properly. Never lose sight of the fact that the primary is the beginning of everything in American politics. No young man can hope to make a start in politics without the support of the primary of his party where he lives. A man who has made a State or national reputation can sometimes ignore the primary and go direct to higher authorities ;\* but even such men generally see the advantage of having the support of their neighbors, who must know them better than other people. The primary selects a dozen, more or less, of its leading men for an Executive Committee, and in most cases the real business of the primary is done by that committee. They select candidates for nomination, and generally their suggestions are followed. Suppose that you live in a small place, and desire to take your first step in politics by becoming a candidate for the town clerkship. That is an office that pays from nothing up to six or eight hundred dollars a year, according to circumstances, and it is much sought after. There are always more candidates for offices that pay than for offices that do not pay. Even a salary of \$50 a year is considered something of a prize in the rural political field.

Your first work is with the Executive Committee of

your party. Of course you know all the members, and you begin by seeing them separately, and suggesting the matter to them in whatever way seems to you best. This is not in accordance with the principle of "the office seeking the man, not the man seeking the office," but it is the general mode of procedure. It is an exception when the office seeks the man; as a rule, the man seeks the office. The man who strains every nerve, pulls every wire, and works and schemes for weeks to secure a nomination, coolly announces after he gets it that he "has reluctantly consented to become a candidate." Of course that is humbug, but it is not nearly as much humbug as he will probably develop before he finishes his political career.

Personal friendship goes a great way with the members of the committee, as it does with all men in all the walks of life. Any man will do more for a friend than for a stranger. So it is of great importance to you to have the friendship of the members of the committee. If two or three influential members are warm friends they can often bring the others to their way of thinking. But the committee must go beyond questions of friendship. Their enmity would certainly hurt you, but their friendship cannot as certainly give you what you want. They must select candidates who are acceptable to the party, and to a majority of the voters. If one of their candidates brings discredit upon himself, the discredit reflects upon the party. They must be satisfied that you are capable of performing the duties of the office satisfactorily. They will ask themselves and one another whether you are popular in the place, whether you have active enemies who would exert themselves to defeat you, whether your habits are good, whether you would be likely to poll a large vote.

If the committee selects you for the nomination, you have still to go through the ordeal of the primary. You must have friends there, too. Friends, friends, friends! that is the secret of success in local politics. But remember that the man who makes apparent effort to make friends, who is all things to all men, who shakes hands with the voters, flatters their wives, and kisses their babies, generally is not as popular as the man who makes friends because he deserves them. Any man of experience knows the professional friend-maker the moment he sees him, and laughs in his sleeve. At the primary you should be able to say a few words, if opportunity offers, briefly, and to the point, and with the modesty becoming in a young man in talking to old workers in the field. The old hands do not want you to give them advice; they know more about the campaign than you do. Spread-eagle oratory is much out of fashion, and of very little use. Facts, briefly and clearly stated, have more effect. Do not waste your voice; save it for the proper time; jumping up on every occasion, saying a few words on every question, is bad policy. Let the others decide on a thing or two without your assistance.

Then comes the ordeal of the election, when the opposition has something to say. There you need more friends than ever. If you can make yourself useful in the campaign, so much the better for your future prospects. Men are useful in local campaigns in different directions. The man who can preside over a meeting with fairness and dignity, but not assumed dignity, to make him ridiculous, is of use. So is the man who can make a good convincing speech. So is the man who can write good political arguments and addresses to voters. Useful above all others, in my opinion, is the man who knows the poll list thoroughly. The poll list, as avail-

able to you before an election, is the list of names of voters who voted at the last election. Without a thorough knowledge of the poll list there can be no effective campaign. This man who knows the poll list may not personally know every one of the voters, but he knows every one's political inclinations, and how he is likely to vote. After the campaign, but hours before the polls close, he can tell you within two or three votes what the result will be. You cannot overestimate the political value of a thorough knowledge of the poll list. Know as many of the voters personally as you can; but know something about every man on the list, and where he can be found, even if you never saw him.

In a well-conducted local campaign the Executive Committee's active work begins several weeks before the election. The first step is to have the poll list read aloud, slowly and distinctly, in the presence of the whole committee. As each name is read, the members tell what they know about that man. If one does not know him, another will. No man on the list is so insignificant that it is said of him, "Oh, he is of no account." One man's vote counts as much as another's. The secretary marks each name as he is instructed, either Republican or Democratic or doubtful. At the close of this preliminary work two hundred names, let us say for example, are marked Democrat, two hundred Republican, and one hundred doubtful. Then the list of doubtful names is read, very slowly, and at each name some member of the committee who knows that man announces, "I will take him," and puts his name on a bit of paper. Another committeeman takes the next man, and so on through the list, until at the close each committeeman has a list of three or four or perhaps a dozen doubtful voters whom he has promised to see and talk with. At each

subsequent meeting of the committee, the poll list being gone over as before, the list of doubtful voters becomes smaller. The committeemen who have seen the men report how they will probably vote. At the last meeting before election there are hardly any doubtful voters. But some voters who have promised will not perform ; and it takes an old resident, well acquainted with the community, to estimate correctly the probable number of such men. Then there are coaches ready on election day. Any voter of the party who has not appeared by the middle of the afternoon is sent for, unless known to be away. A good campaign manager tries to get a fair share of his vote in very early — it is consoling to have a solid layer of your tickets in the bottom of the ballot-box, so that you may “come out strong” at the end. There is work without end in such a campaign, and if you can do some of it well you make yourself valuable to your party. But do not fail to know your poll list as you know the alphabet.

After the election is a very important time for you — if you are elected to bear it modestly, and if you are defeated to take it gracefully. Do not brag if you are elected, and boast of your popularity. I have never known a newly-elected candidate to hurt himself by refusing to buy liquor for the thirsty voters among his constituents, nor help himself by doing it. There are many better ways in which their favors may be acknowledged. In defeat there is more danger than in victory. If you feel chagrined, disheartened, do not let your nearest friend see it. The young candidate who becomes disgusted with his party because of defeat, complains of ill usage, declares that he has not been fairly dealt with, does himself a great injury. Look upon it philosophically. Go and congratulate your successful opponent, and

hope for better luck next time. A politician must expect many defeats and disappointments; they form a large part of his experience. And he must make up his mind at the beginning to take them all good-naturedly.

In the large cities many young men lay their plans early for political careers, and set about the work with great skill and earnestness. In New York, particularly, these young men are often graduates of the Free College and of a law school, and among them all, the young Hebrews and young Irishmen or descendants of Irishmen are usually the most successful. They stand preëminent as political managers and organizers of campaigns. With the proceeds of their budding legal practices they begin to make themselves known, and favorably known. Whether in city or country the first requisite is to make friends and acquaintances, and they understand this thoroughly. In the city there are thousands of small clubs and social organizations that may be joined at small expense. Such a young man joins as many of these as possible, making himself sociable and popular in each, and belonging sometimes to as many as fifty or sixty clubs, large and small. This is a step that tells at the polls. After a while he secures a nomination for the Assembly, or for some other position, and in each of his clubs it is said of him, "Smith? Why Smith is one of our members, and a clever fellow. We must vote for him, sure!"

For a deeper insight into clever political management than it is possible to give here you cannot do better than read one of the many published descriptions of the methods of Tammany Hall in New York City. It is said that the Roman Catholic Church is the most perfectly organized body that the world has ever seen. Then beyond a doubt the Tammany Society may be counted second.



The city is carefully mapped into districts, and each district has its "leader," who not only knows all his followers in the district, but looks after their welfare. He fathers the fatherless, feeds the hungry, clothes the naked. If Dennis O'Brien is out of work and in danger of being turned into the street, it is the district leader who gives him temporary help. If the corner saloon-keeper is arrested for violating the law the district leader is in court to go his bail. He is the father of his district, to whom any Tammany man may turn for help in time of trouble. The other parties having no such perfect organization, Tammany has become a necessity to a large class of voters. Without it they would feel friendless and unsafe. I have shown you how a rural campaign is managed. In the management of a great city campaign Tammany is absolutely unequalled. Each district leader knows his poll list as thoroughly as it is known in a small township, and each reports to his chief. On the eve of an election Richard Croker, the present leader, could tell you, if he would, within a very few votes how the city will go—except, of course, in the case of a great uprising of indignant citizens who usually do not take the trouble to vote; and even that may to some extent be foreseen.

Between Tammany methods and real statesmanship is a long step—we might call it a frightful chasm. But if you are going into politics you must use all proper methods that will win. Pit a Tammany organization against the eloquence of a Clay or a Webster, and the organization would win nine times out of ten.

If you can rise to the height of statesmanship, and reach that level with clean hands and a pure heart, you will not be hindered by competition. The over-production from which business suffers does not extend to states-

manship. In every profession, but preëminently in politics, there is room at the top.

“And he gave it for his opinion, that whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.”— *Swift*.

“Statesman, yet friend to truth! of soul sincere,  
In action faithful, and in honor clear;  
Who broke no promise, serv'd no private end,  
Who gain'd no title, and who lost no friend.”

*Pope. Epistle to Mr. Addison.*

## THE MAN AND THE OFFICE.

“I HATE all bungling as I do sin, but particularly bungling in politics, which leads to the misery and ruin of many thousands and millions of people.” — *Goethe*.

“It is not prudence to make politics a profession; the business is overstocked, the field is overrun with weeds; if you enter the arena, take a pickaxe and a pruning-hook with you. The Augean stable needs cleaning; if you are a Hercules, go ahead.” — *W. Cobbett*.

“After some months’ labor bestowed on the American Short-Horn Herd-Book (a work then in course of preparation by his uncle), an opportunity arose for getting young Cleveland into a law office, and this was readily embraced, for the legal profession had been the boy’s ambition. In his new position he succeeded so well that by the end of the year he was permanently engaged by the firm of Messrs. Brown & Rogers. It was at work in their chambers that he laid the foundation of those great legal acquirements which placed him at the head of the profession before his election to high position in the government. In 1857 he was called to the bar, and, following the American custom, entered into partnership with other members of the profession.” — *Jeyes*.

“His (Cleveland’s) success at the bar was due to his grasp of facts and lucidity of statement, not to any display of rhetoric. From the first his reputation was that of a man of great vigor and industry, whose knowledge and uprightness won the respect of the judges and of his

own profession. He was too well employed to take an active part in politics, and, indeed, it is not the custom in the Union for the industrious or the orderly to join in the turmoil of public meetings. These are left to the professional politicians and their satellites." — *Jeyes (British)*.

"Nothing is easier than to show that Washington had had precisely the best training to make a statesman of the highest rank. He came of a race used to act and to command. From an early age he had to rely upon himself and so was enabled to attain to that self-discipline which is indispensable to a statesman. Circumstances determined that he should learn the lessons of life from men rather than books; thus he stood in no danger of becoming a doctrinaire. His early experiences as a surveyor and a backwoodsman and a soldier gave him a true sympathy with democracy and hence enabled him to understand the only rational principles upon which a stable government could be founded in America, while his good birth and training and his position as a planter and an aristocrat put him in touch with the English past from which it would have been impossible for the new nation to break entirely." — *W. P. Trent*.

"The American idea is a free Church and a free State and a free and unsectarian public school in every ward and every village, with its doors wide open to the children of all races and of every creed. It goes still farther, and frowns upon the constant attempt to divide our people according to origin or extraction. Let every man honor and love the land of his birth and the race from which he springs and keep their memory green. It is a pious and honorable duty. But let us have done with British-Americans, Irish-Americans, and so on, and all be Americans — nothing more and nothing less. If a man is going

to be an American at all, let him be so without any qualifying adjectives, and if he is going to be something else let him drop the word 'American' from his personal description." — *Henry Cabot Lodge*.

"The first and most important function of a liberal education is to fit a man for the life before him and to prepare him, whatever profession or pursuit he may follow, to be a useful citizen of the country which gave him birth. This is of vast importance in any country, but in the United States it is of peculiar moment, because here every man has imposed upon him the duties of sovereignty, and in accordance with his capacity and his opportunities are the responsibilities of that sovereignty." — *Henry Cabot Lodge*.

"If a man is not a good citizen it boots little whether he is a learned Grecian or a sound Latinist. If he is out of sympathy with his country, his people, and his time, the last refinement and the highest accomplishments are of but slight moment. And it is of the utmost importance that every man, and especially every educated man, in the United States, no matter what his profession or business, should be in sympathy with his country, with its history in the past, its needs in the present, and its aspirations for the future." — *Henry Cabot Lodge*.

"True Americanism is really only another word for intelligent patriotism. Loud self-assertion has no part in it and mere criticism and carping, with their everlasting whine because we are not as others are, cannot exist beside it. Americanism in its right sense does not tend in the least to repress wholesome criticism of what is wrong; on the contrary, it encourages it." — *Henry Cabot Lodge*.

“The danger of the higher education of a great university is that in widening the horizon it may distort the sense of proportion so far as our own country is concerned. The teachings of the university open to us the literature, the art, the science, and the history of all other nations. They would be quite worthless to us if they did not do so. These teachings necessarily form the great mass of all that we study here. That which relates to our own country is inevitably only a small part, comparatively speaking, of the great whole. Our own nation is comparatively new. There is a tendency to lose the sense of proportion, to underrate our own place in the history and life of the world, and to forget that knowledge of our own country, while it excludes nothing else, is nevertheless more important to us than that of all other countries, if we mean to play a man’s part in life.” — *Henry Cabot Lodge*.

“It was only because Washington knew how to deal with Congresses and Legislatures, with State governments and subordinate generals, that the Revolution was brought to a successful issue.” — *W. P. Trent*.

“But if from our life were to be taken the pleasure derived from the faculty of reading, very little would remain. Shakespeare and Milton and Chaucer and Spenser and Plutarch and the Arabian Nights’ Entertainment and ‘Don Quixote’ and ‘Gil Blas’ and ‘Tom Jones’ and ‘Gulliver’ and ‘Robinson Crusoe’ and the tale of Troy divine have made up more than one-half of my worldly enjoyment.” — *John Randolph*.

“Besides browsing in good old books and getting religious and social ideas from a devoted mother who died too soon, John Randolph did little toward what we call obtaining an education. He acknowledged to his

nephew later on that he was a very ignorant man, and although his preposterous biographer saw fit to warn his readers against accepting this modest statement, it is plain that Randolph was never what could be called a thoroughly trained and rounded man." — *W. P. Trent*.

"The politician thinks of the next election; the statesman of the next generation. A politician looks for the success of his party; a statesman for that of the country. A statesman wishes to steer, while the politician is satisfied to drift." — *Clarke*.

"My brother, William Tecumseh, was three years my senior, and he and his associates of his own age rather looked down upon their juniors. Still, I had a good deal of intercourse with them, mainly in the way of advice on his part. At that time he was a steady student, quiet in his manners and easily moved by sympathy or affection. I was regarded as a wild, reckless lad, eager in controversy and ready to fight. No one could then anticipate that he was to become a great warrior and I a plodding lawyer and politician. I fired my first gun from his shoulder. He took me with him to carry the game. He was then destined to West Point and was preparing for it. To me the future was all unknown." — *Autobiography of John Sherman*.

"At this time Ohio had decided upon an improvement of the Muskingum river, from Zanesville to Marietta, and the Board of Public Works had selected Col. Samuel R. Curtis, a graduate of West Point, as chief engineer. Charles had no difficulty in securing me an appointment as junior rodman, if at the age of fourteen I could perform the duties required — which Colonel Curtis doubted. The work was not to commence until the spring, when I was to be given a trial. I worked hard that winter, for



hard work, I thought, was the way to fortune. I studied the mode of levelling. I saw a man in the Hocking Canal prepare his instrument, took his way of sighting from the level of the water in the canal, then by a succession of levels backwards and forwards, carry his level to the objective point. Then the man was kind enough to show me how by simple addition and subtraction the result wanted could be obtained. I was well advanced in arithmetic and in mechanics generally and was confident, even if I was hardly fourteen years, that I could do the work of a junior rodman." — *John Sherman*.

"During the period of my stay on the Muskingum improvements I had very excellent opportunities for study, of which I regret to say I did not avail myself as well as I might have done. Still, I occupied my leisure in reading novels, histories, and such books as I could readily get. Many books were sent to me from Lancaster. I purchased a number and found some in Beverly which were kindly loaned to me. I read most of the British classics, as they are called, the 'Spectator,' Shakespeare, Byron, and Scott. I read all that I could find of the history of America. I tried to brush up my Latin, but without much success." — *John Sherman*.

"Public men are servants of many masters." — *Hull*.

"Politicians find it expedient to flatter the people grossly in order to lead them; and the people, while glorying in their collective liberty, exhibit too often the sad spectacle of being as individuals overawed by public opinion or enslaved by faction." — *Potter*.

"The lowest of politicians is the demagogue — the man who seeks to gratify an invariable selfishness by pretending to seek the public good. For a profitable

popularity he accommodates himself to all opinions, to all dispositions, to every side and to each prejudice." — *Henry Ward Beecher*.

"It is a sad truth that many of our best citizens in all parts of the country live in a constant neglect of their political duties. They are eloquent upon the evils of misgovernment, and yet forget that they are accountable for a large share of the mischiefs by which they suffer in common with the whole country." — *C. D. Cleveland*.

"He who serves the public is a poor animal. He worries himself to death and no one thanks him for it." — *Goethe*.

"The office should seek the man, not the man the office." — *Silas Wright*.

"Wise men sue for offices and blockheads get them." — *Damhouder*.

"There is a great difference between holding a high office and having the office hold us." — *Shaw*.

"I have no desire for office, not even the highest; the most exalted is but a prison, in which the incarcerated incumbent daily receives his cold, heartless visitants, marks his weary hours, and is cut off from the practical enjoyment of all the blessings of genuine freedom." — *Henry Clay*.

"High office is like a pyramid: only two kinds of animals reach the summit, reptiles and eagles." — *D'Alembert*.

"In a country where the offices are created solely for the benefit of the people, no one man has any more in-

trinsic right to official station than another; offices were not established to support particular men at the public expense; no individual wrong is therefore done by removal, since neither appointment to nor continuance in office is a matter of right." — *Andrew Jackson*.

"Some persons of great promise, when raised to high office, either are puffed up with self-sufficiency or in some way or other disappoint expectation; and others again show talents and courage and other qualifications, when these are called forth by high office, beyond what any one gave them credit for and beyond what they suspected to be in themselves. It is unhappily very difficult to judge how any man will conduct himself in a high office until the trial has been made." — *R. Whately*.

"Five things are requisite to the good officer—ability, clean hands, despatch, patience, and impartiality." — *Wm. Penn.*

"All see and must admire the glare which hovers around the external happiness of elevated office: to me there is nothing in it beyond the lustre which may be reflected from its connection with the power of promoting all human felicity." — *George Washington*.

"If a due participation of office is a matter of right, how are vacancies to be obtained? Those by death are few; by resignation, none." — *Anonymous*.

"If ever this free people, if this government itself is ever utterly demoralized, it will come from this human wriggle and struggle for office—that is, a way to live without work." — *Abraham Lincoln*.

"In affairs of state the man who looks only at forms of laws and at the daily routine of government is but a

politician; while he who comprehends the great stately principles which walk, known or disguised, through all things, and who looks forward with clear vision to see the bearing of the present on the future, is a statesman." — *Henry Ward Beecher*.

"He alone deserves the name of a great statesman whose principle it is to extend the power of the people in proportion to the extent of their knowledge, and to give them every facility for obtaining such a degree of knowledge as may render it safe to trust them with absolute power." — *Macaulay*.

Six questions in the civil-service examination for a clerkship in the New York custom house are as follows:

(1.) "A piece of silk exceeds  $\frac{5}{8}$  of a yard in width by  $\frac{5}{9}$  of an inch. What is its actual width?"

(2.) "A dealer exported 374.3190 bushels of corn, receiving in exchange coal at the rate of one ton of coal for 15.124 bushels of corn. How much coal did he receive?"

(3.) "The duty on woollen bunting being 20 cents per square yard, and 35 per cent. ad valorem, give the total duty on 45 pieces, each containing 38 linear yards, the width being 42 inches and costing 55 cents per linear yard."

(4.) "Write a letter to the Secretary of the Treasury on the foreign and domestic commerce of the United States, defining them and showing their relations to the prosperity of our country."

(5.) "Describe the extent of territory covered by the Louisiana purchase."

(6.) "What are the chief sources of revenue of the general government?"

"The civil service of the United States now gives employment to over one hundred and twenty thousand per-

sons; a portion of this force, consisting of laborers and others temporarily engaged, subordinates in the secret service and all others paid out of lump or contingent appropriations, is not borne upon the department rolls." — *Comstock's "Civil Service in the United States."*

"In the business of the government there is needed as much and as varied ability as in banks and in counting-houses, while the interests involved are beyond comparison or estimate." — *Comstock.*

"When a king creates an office Providence creates immediately a fool to buy it." — *Colbert.*

"I look upon an able statesman out of business as a huge whale that will endeavor to overturn the ship unless he have an empty cask to play with." — *Steele.*

"It is curious that we pay statesmen for what they say, not for what they do; and judge of them from what they do, not from what they say. Hence they have one code of maxims for profession and another for practice, and make up their consciences as the Neapolitans do their beds, with one set of furniture for show and another for use." — *Colton.*

"Our distinctions do not lie in the places we occupy, but in the grace and dignity with which we fill them." — *Anonymous.*

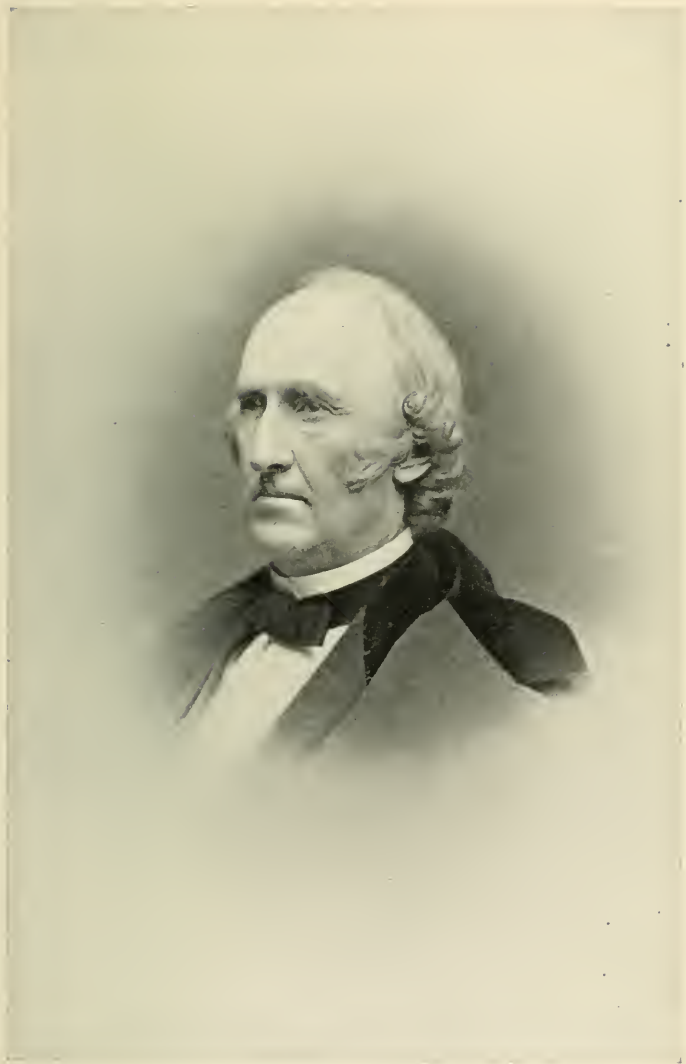
## PUBLIC SPEAKING.

“He was wont to speak plain and to the purpose.”

*Shakespeare.*

EVERY American young man, no matter what his position or prospects, should be able to express himself readily in public. By the time that he becomes a young man he should have had sufficient experience to assure him that when he stands upon his feet in a public meeting his tongue will not cleave to his mouth nor his knees refuse to support him. The mechanical part of speaking in public is much like swimming: once learn by trial that the body will float, and the rest is easy. Like swimming, the art should be learned in early boyhood; and like swimming, again, it can be learned at any period of life if necessary.

Do not confuse the mere mechanical act with the substance of a speech. I do not pretend to tell you that every young American can become a great speaker. It is impossible to extract from the human brain what is not there. But every young American can and should learn by experience to stand up in public and say readily, without fear or hesitation, what he has to say. This is an important matter in any part of the world, but it is far more important in this country than in any other. Here every great question is freely and thoroughly discussed in public; and the man who is prevented by fear, that is, by want of practice, from expressing himself, is at a disadvantage. The fate in store for you may be to haul logs in some distant lumber-camp; to dig in a coal-mine;



WENDELL PHILLIPS.

With his wonderful oratorical powers Wendell Phillips did perhaps more than any other man of his time to bring about the abolition of slavery in this country. A lawyer, a graduate of Harvard College, he was in every sense a broad man, advocating temperance, the ballot for women, the rights of the Indians, and the improvement of penal institutions.





to sail before the mast. No matter ; you should learn to speak in public. Occasions are sure to come, in any and every situation, when it is desirable to speak clearly to one's fellows. The hamlet shoemaker who has trained himself to speak well in public often exerts more influence in his community than his far more prosperous neighbor.

It is in school that every boy should have his first lessons in public speaking. Hardly any age is too early to begin. The boy who recites "The boy stood on the burning deck" on the school platform when eight years old, and speaks and speaks whenever he has an opportunity, though it be only reciting familiar verses, is not afraid to stand before an audience at fourteen, and at eighteen he can to some extent "think on his feet" — that is, he can briefly express opinions of his own instead of merely reciting the rhymes of other people. Frequent public recitation in school gives the young speaker confidence in himself and in his voice. The school training exerts a tremendous influence upon the oratory of any section of a country. I do not know where you can see stronger proof of this than in the House of Representatives in Washington, where men are gathered from every part of the country. As a rule the Southern members are much easier and more fluent speakers than those from the Northern States. This is because a generation ago far more attention was given to oratory in Southern than in Northern schools. In old times in the South the boys who went beyond the primary schools were those whose parents were able to pay, and they were destined usually for the legal or some other profession, or for politics. It was necessary that they should be able to speak well in public, and great attention was paid to oratory in the schools and colleges. They are also more "flowery" than Northern members in their speech, more theatrical in

manner, because that was the style in vogue in their schools. But their early training shows wonderfully to their advantage. No question can come up so suddenly that they are not able to express their views upon it freely and clearly. More attention is now paid to public speaking in the Northern schools than formerly, but there is still room for advancement.

No boy or young man need be confined to the schools, however, for his practice in public speaking. In almost every community there are societies in which such practice may be had. Many a man has taken his first lessons in public speaking in the Masonic lodge-room, or among the Good Templars or the Odd Fellows. The mere reading of part of the ritual before the lodge night after night helps to give a man confidence in himself and in his voice. Everywhere there are political meetings. There is always a young man's chance; but he must be careful not to speak too often or too long. Do not imagine, particularly in the beginning, that you are to do anything on the spur of the moment. A few brief sentences, carefully thought out beforehand, clearly expressing what you wish to say, should satisfy you at the start. Gradually, as you gain confidence, you may make your speeches a little longer. And every time you speak you will find it a little easier.

There are great prizes in this field, and they are worth striving for. Not one young man in a thousand can become a great orator, but nearly any young man of average ability can with determined practice acquire such fluency of delivery as is necessary for ordinary occasions; and that is a great advantage to any young man, helping him in rather than interfering with his other duties. Do not be afraid of a little "stage fright" at first. Practice disposes of that. Stories that you

sometimes read of old actors who never go before an audience without suffering at first from stage fright may be regarded with suspicion. A man who does the same thing night after night soon feels entirely at ease. You never hear of an old clergyman whose knees tremble when he goes into the pulpit.

Some men of extraordinary power before an audience are comparatively powerless with the pen. That may prove to be your case; or it may be the reverse. The Rev. Henry Ward Beecher was one of the greatest of American orators, but if you examine his writings you will find them altogether inferior to his published speeches and sermons. With the stimulus of an audience before him the very air he breathed seemed to be alive with fresh ideas, with apt illustrations; but they refused to come at his call when he took up the pen. He once told me the thrilling story of his historic lecture in the Richmond Theatre, delivered while the nation was still rent with dissension after the Civil War. Mr. Beecher had been so warm in his advocacy of the Northern cause that he was, of course, very unpopular in the South, and after the war he had not then appeared in public in any of the Southern States. Partly as an experiment, his agent arranged that one of the lectures in a long tour should be delivered in the Richmond Theatre. The announcement immediately raised a storm of indignation in the former capital of the Confederacy. The newspapers were furious, and prominent citizens published denunciatory circulars. Certainly no lady, they said, would hear such a man speak; nor would respectable men; he should be mobbed, and hooted out of the city.

When the day for the lecture arrived the owner of the theatre begged the agent to cancel his engagement.

Mr. Beecher would not be allowed to speak, he said. The theatre would be filled with young ruffians, who would mob him. There would certainly be a riot, and the building might be destroyed. Mr. Beecher was then on his way from New York, and when the train reached Washington he received his agent's telegram explaining the situation, and advising him to abandon the lecture. He simply replied, "I shall lecture in Richmond to-night." Who knows his own power better than a great orator?

"When I stepped upon the stage," he said, "I was greeted with a storm of hisses, hootings, and catcalls. There was not a woman in the house, which was packed from pit to roof with young men of all classes. They hissed and hooted for perhaps five minutes, and I waited patiently for them to tire themselves out. Then in a moment of comparative quiet I began, and my first word was of course the signal for a fresh outburst of hisses. I anticipated that, and knew that it was simply a question of endurance between the audience and the speaker. I could stand it as long as they could. This was repeated three or four times, as often as I opened my mouth. Presently they tired of the sport, and besides they were a little curious, I imagine, to see how I would take such a reception. I took it in a way that they were not prepared for. As soon as they would hear me I began with a funny story, and in two minutes I had the entire house in a roar of laughter. That was enough. If I could make them laugh, the victory was won. I knew that from that moment those young men should laugh or cry just as I bade them."

The only riot was a riot of thundering cheers and applause. Those young men had never heard such a speaker. His bursts of eloquence carried them completely

off their feet. In ten minutes the one man converted five thousand enemies into five thousand friends. At the conclusion of the lecture they would not hear of his stopping, and he was compelled to go on speaking for half an hour longer. There have been scores, hundreds of such triumphs of oratory.

Is that genius, such complete mastery over an audience ? “ Genius is talent well worked.” With the talent for a foundation, a public speaker must learn by experience how to use his eloquence to the best advantage. It is not by intuition, it is by long observation and experience that a speaker knows where a joke will tell, when to use a pathetic anecdote. It is not enough to be able to make an audience laugh or cry ; he must produce the tears or laughter at the right moment, or the effect is lost. The most eloquent passages are sometimes, in an experienced speaker, spontaneous ; but much oftener they are carefully prepared beforehand.

But you are, it is fair to suppose, a long way from being a great orator. That may come in time, if you persevere. The point for you to consider is that the art of public speaking may be acquired by you without interference with your other duties, that possibly you may develop such an aptitude for it that it will completely overshadow all your other plans, and that in any case it will always be a help and an advantage to you. How, then, you will ask, are you to acquire this art ?

In the first place, do not speak in public without having something to say. The matter is always of more importance than the manner, important as the delivery is. Do not imagine that following this rule will debar you from speaking at all. You can hardly attend any meeting, and listen to the proceedings, without some point occurring to you that has not been touched upon by the

other speakers. In a political meeting you can at least say something about the candidates whom you know. But, unless under the most extraordinary circumstances, let it be something favorable, or leave it unsaid. Even in politics you must remember that the enemy of to-day possibly may be the friend of to-morrow. Making a good point by some cutting personal remark is always dangerous. Whether in political or in other gatherings, the opportunity to say a few timely words will come to you often. In the beginning, at any rate, you should always have a thorough knowledge of what you intend to say, before you begin. The exact words, perhaps, need not be committed to memory, but the ideas must be fixed in your mind. As you advance, through practice, do not hesitate to take time beforehand not only to think out your entire address, but to write it out. The greatest efforts of the greatest orators have nearly always been prepared with great care, at least in outline. "There is no such thing as extemporaneous eloquence," said Daniel Webster; "no man is inspired by the occasion; I never was." In time new thoughts may crowd upon you while you are speaking; at the beginning you will find it hard to retain the old ones.

The modern idea about public speaking is that it should be as natural as possible — argumentative, not flowery. The eagle flapping his wings, and the broad land stretching from ocean to ocean, from lakes to gulf, are familiar relics of a style that is obsolete. Plain facts, plainly told, are much more effective. And windmill gestures are as much out of date as references to eagles and flowers and starry heavens. To stand upon the platform with hands constantly before you, or behind you, or at your sides, obviously would be too awkward; hands and arms must be used to give emphasis to your words, but gently.



Forget completely, if you can, that you have hands and feet; let them move as nature dictates, but put on the brakes if they move too violently. It is not necessary to look and point skyward if you mention a star; your hearers know about where it is. If you speak of the east or the west, do not you imagine your arms to be the pointers of a compass. If you are tempted to roll your R's, do not yield to it. No affectations in any direction; no nonsense.

The great objection to taking lessons in oratory from a professional teacher is that in most cases such teachers are retired actors, or have been connected with the stage. The traditions of the stage cling to them in spite of themselves; and a delivery that would be proper enough in acting a part would often be ridiculous in a platform speaker. Do not draw your ideas of public speaking from the theatre, but from the best public speakers within your reach. If you are in the habit of attending the theatre you can get (I mean in the best theatres only) a good idea of the pronunciation of doubtful words. High-class theatres are extremely particular in this matter, and the pronunciation of the best actors may nearly always be followed with safety, because in case of doubt they take pains to investigate.

That matter of pronunciation is of the utmost importance to a public speaker. To mispronounce words makes him appear ridiculous. The best speakers and lecturers understand this well, and they are so careful that their pronunciation of words may nearly always be accepted as correct. Away from the large cities it is not always easy to acquire a correct pronunciation. If you depend upon some educated man in whom you have confidence you must remember that educated men often have individual peculiarities. The best dictionaries are not always in-

fallible. The pronunciation in common use among educated people is the only safe guide.

Equally important is distinctness. You cannot expect to speak distinctly unless you speak slowly. And it is almost certain that at the beginning you will not speak slowly without an effort. The tendency nearly always is to speak too fast. Bring out every word slowly and clearly ; make every word tell. There is such an extreme of slowness that it becomes painful to the listener, and that too must be avoided. At first you must take pains to regulate your voice to suit the size of the building in which you speak, that you may neither whisper in a large room nor bellow in a small one ; with a little experience your voice will naturally adapt itself to the requirements. You will find it an excellent plan to imagine that there sits upon one of the back seats of the hall a foreigner whose knowledge of the language is imperfect, and who cannot understand you unless you give him every word very slowly and very distinctly. Then talk to him, and make him understand. You will appreciate the difference between common conversation and correct and distinct utterance in public if you go to Paris with an ordinary working knowledge of the French language. The people you meet in the streets, in the shops, in the hotels, you will at first find it difficult to understand. But go into one of the best theatres, and the careful and distinct utterance of the actors will make nearly every word intelligible to you.

“ Loud-bawling orators are driven by their weakness to noise, as lame men to take horse.” — *Cicero*.

## AN ORATOR'S TRAINING.

"In oratory the greatest art is to hide art." — *Swift*.

"The orator whose eye flashes instantaneous fire and whose lips pour out a flood of noble thoughts, startling by their unexpectedness and illuminating by their wisdom and truth, has learned his secret by patient repetition and after many disappointments." — *Smiles*.

"Oratory is the power to talk people out of their sober and mature opinions. Oratory is a dangerous talent, and few men are fit to be trusted with it, for few are able to resist the temptation to use it for their own ends. True orators are more scarce than is generally imagined." — *Chatfield*.

"The beginning of the art of oratory is to acquire the habit of easy speaking; the next step is the grand one — to convert this style of easy speaking into chaste eloquence. Though speaking without writing before, hand is very well until the habit of easy speech is acquired, yet after that one can never write too much. It is laborious, no doubt, and it is more difficult beyond comparison than speaking offhand; but it is necessary to perfect oratory, and at any rate it is necessary to acquire the habit of correct diction. But I go farther and say that even to the end of a man's life he must prepare, word for word, most of his finer passages." — *Brougham*.

"Extemporaneous speech is the crowning work of the orator's art; preparation is the last finish and the most

difficult of all his accomplishments. To learn by heart as a schoolboy, and to prepare as an orator, are two things not only different but essentially antagonistic to each other." — *Bulwer*.

"It is the first rule in oratory that a man must appear such as he would persuade others to be; and that can be accomplished only by the force of his life." — *Swift*.

"In oratory, affectation must be avoided; it being better for a man by a native and clear eloquence to express himself than by those words which may smell either of the lamp or of the inkhorn." — *Lord Herbert*.

"There is no power like that of oratory: Cæsar controlled men by exciting their fears; Cicero by captivating their affections and swaying their passions. The influence of the one perished with its author; that of the other continues to this day." — *Henry Clay*.

"The business of oratory is to persuade people; and you easily feel that to please people is a great step toward persuading them. You must, consequently, be sensible how advantageous it is for a man who speaks in public to please his hearers so much as to gain their attention, which he can never do without the help of oratory. It is not enough to speak the language he speaks in its utmost purity and according to the rules of grammar, but he must speak it elegantly — that is, he must choose the best and the most expressive words and put them in the best order; he should likewise adorn what he says by proper metaphors, similes, and other figures of rhetoric; and he should enliven, if he can, by quick and sprightly turns of wit." — *Lord Chesterfield*.

"Patrick Henry's youth gave no presage of his future greatness. He was idle and lazy and spent most of his

time in fishing and hunting and playing the violin. At the age of sixteen he was established in trade by his father, but through idleness, love of music, and the charms of the chase he soon became bankrupt. While a merchant he studied human nature continually, not in reference to the honesty and solvency of his customers, but in relation to the structure of their minds and opinions. By endeavoring constantly to make political and other subjects understood by his illiterate hearers he became a master of that clear and simple style which forms the best vehicle of thought in a popular assembly. He was also instructed by these exercises in those topics of persuasion by which men are most certainly to be moved, and in the kind of imagery and structure of language which are best fitted to strike and agitate their hearts." — *Henry Hardwick*.

"On this first trial of Patrick Henry's strength he arose very awkwardly and faltered much in his exordium. The people hung their heads at so unpromising a commencement. The clergy were observed to exchange sly looks with each other. His father is described as having almost sunk with confusion from his seat. But these feelings were of short duration and soon gave place to others of a very different character. As his mind rolled along and began to glow, all the clown seemed to shed itself spontaneously. His attitude by degrees became erect and lofty. The spirit of his genius awakened all his features. His countenance shone with a nobleness and grandeur which it had never before exhibited. There was a lightning in his eyes which seemed to rive the spectators. His action became bold, graceful, and commanding; and in the tones of his voice, but more especially in the emphasis, there was a peculiar charm and magic of which every one who has ever heard will speak,

but of which no one will give any adequate description. In the language of those who heard him on this occasion, he made their blood run cold and their hair to rise on end." — *Wirt*.

"In less than twenty minutes they might be seen in every part of the house, on every bench, in every window, stooping forward from their stands in deathlike silence; their features fixed in amazement and awe; all their senses listening and riveted upon the speaker as if to catch the last strain of some heavenly visitant. The mockery of the clergy was soon turned into alarm; their triumph into confusion and despair; and at one burst of his rapid and overwhelming invective they fled from the bench in precipitation and terror. As for the father, such was his surprise, such his amazement, such his rapture, that forgetting where he was and the character he was filling, tears of ecstasy streamed down his cheeks without the power or the inclination to stop them." — *Henry Hardwick*.

"Mr. Henry in his youth was indifferent to dress, but he became more refined as he rose in experience and influence. His appearance, however, was at all times wonderfully impressive. He was nearly six feet high, spare and rawboned, with a slight stoop of his shoulders. His complexion was dark and sallow; his natural expression grave, thoughtful, and penetrating. He was gifted with a strong and musical voice, often rendered doubly fascinating by the mild splendors of his brilliant blue eyes. When animated he spoke with the greatest variety of manner and tone." — *Henry Hardwick*.

"As an agricultural laborer, Daniel Webster, in his youth at least, was not greatly distinguished, except for inefficiency, and he said on one occasion that his father

sent him to college to make him equal to the other children. At one time Daniel was put to mowing, but he made bad work of it. His scythe was sometimes in the ground and sometimes over the tops of the grass. He complained to his father that his scythe was not hung right. Various attempts were made to hang it better, but with no success. His father told him at length that he might hang it to suit himself, and he therefore hung it upon a tree and said, "There, that is right." His father laughed and told him to let it hang there." — *Henry Hardwick*.

"Diffident speakers should note the fact that early in life Webster had the strongest antipathy to public declamation, and when he first declaimed at school he became greatly embarrassed and even burst into tears." — *Henry Hardwick*.

"The question was asked of Demosthenes what was the chief art of the orator. He answered, 'Action.' 'What next?' 'Action.' 'What next again?' 'Action.' He said it that knew it best and had by nature himself no advantage in that he commended. A strange thing that that part of the orator which is but superficial, and rather the virtue of the player, should be placed so high above those other noble parts of invention, eloquence and the rest; nay, almost alone, as if it were all in all. But the reason is plain. There is in human nature generally more of the fool than of the wise, and therefore those faculties by which the foolish parts of men's minds are taken are most potent." — *Bacon*.

"The prodigies which eloquence often works in the hands of single men upon an entire nation are perhaps the most shining testimony of the superiority of one man over another." — *D'Alembert*.



"Eloquence is the appropriate organ of the highest personal energy." — *Emerson*.

"As there is no effort of the human mind which demands a rarer combination of faculties than does oratory in its loftiest flights, so there is no human effort which is rewarded with more immediate or more dazzling triumphs. The orator is not compelled to wait through long and weary years to reap the reward of his labors. His triumphs are instantaneous; they follow his efforts as the thunder peal follows the lightning's flash. While he is in the very act of forming his sentences his triumph is reflected from the countenances of his hearers and is sounded from their lips. To stand up before a vast assembly, composed of men of the most varied callings, views, passions, and prejudices, and mould them at will; to play upon their hearts and minds as a master upon the keys of a piano; to convince their understandings by the logic and to control their feelings by the art of the orator; to see every eye watching his face and every ear intent on the words that drop from his lips; to hear thunders of applause at the close of every period; and to think that all this is the creation of the moment and has sprung instantaneously from his fiery brain and the inspiration imparted to it by the circumstances of the hour; this perhaps is the greatest triumph which the human mind is capable of." — *Matthews*.

"In our own country the triumphs of eloquence have been hardly less marked than those of the Old World. When, in 1761, James Otis, in the Boston popular assembly, denounced the British writs of assistance, his hearers were hurried away resistlessly on the torrents of his impetuous speech. When he had concluded, every man, we are told, of the vast audience went away determined to take up arms against the English." — *Matthews*.

"We fear that the United States has more than one Novius, who owes his seat in the State Legislature, in Congress, or even on the bench, to the force of his lungs ; but shall we therefore conclude that the study of oratory as an art should be discouraged ? The very reverse, we think, is the just conclusion." — *Matthews*.

"It is an unpleasant conviction which we wish the facts did not force upon us, that while there is plenty of 'spouting' — of speaking, if one pleases — in this country, there is little oratory and less eloquence. It is for the very reason that the American people are deluged by their public speakers with words — it is because so many of those that assume to address them from the tribune and the platform remind us so unpleasantly of that bird of the parrot tribe whose tongue is longer than its whole body — that we would call attention to and most earnestly emphasize the value of oratorical studies." — *Matthews*.

"It is because our young men do not realize that oratory is the weapon of the athlete, and can never be wielded effectually by an intellectual and moral weakling, — because our colleges intentionally give currency to this idea by devoting so insignificant a portion of time to exercises in elocution, — that so many persons are ready to afflict the public with 'mouthfuls of spoken wind.' " — *Matthews*.

"Let them once learn and deeply feel that the most infallible sign of genius is a prodigious capacity for hard work and an intense conviction of its necessity ; that no man ever has or ever can be a true orator without a long and severe apprenticeship to the art ; that it not only demands constant daily practice in speaking and reading, but sedulous culture of the memory and judgment and the fancy, the ceaseless storing of the cells of the brain with

the treasures of literature, history, and science for its use; that one might as well expect literally to command the lightnings and the tempests without philosophy as without philosophy to wield the lightnings of eloquence—and they will shrink from haranguing their fellow-men except after a careful training and the most conscientious preparation. So far is it from being true that if elocution and style were cultivated more, a torrent of empty declamation would be let loose upon the world, that we are confident that the very opposite would be the result. Study, the high appreciation of an art, by improving the taste, increase fastidiousness; hence they are calculated to check rather than increase loquacity.” — *Matthews*.

“To estimate the degree in which the orator has influenced the world’s history would be a difficult task. It would be hardly too much to say that since the dawn of civilization the triumphs of the tongue have rivalled if not surpassed those of the sword. There is hardly any man, illiterate or educated, so destitute of sensibility that he is not charmed by the use of eloquent speech even though it affect his senses rather than his mind and heart, and rouses his blood only as it is roused by the drums and trumpets of military bands.” — *Matthews*.

“Go into the British Parliament or the American Congress, and the theme of debate will be—what? In all probability a road or a bridge bill, a bill to demonetize or remonetize silver, a bill to subsidize a steamship or railroad corporation or to establish a new post route. A man who should discuss these questions as if they were matters of life and death would only make himself a laughing-stock.” — *Matthews*.

“And now the custom of writing out speeches and

committing them to paper is leading to that of reading them. Nothing more fatal to a speaker's influence and better fitted to stifle every charm of eloquence can be imagined." — *Matthews*.

"It should be remembered that the political platform offers a field of oratory not inferior to any that it has enjoyed during the period of the world's history. Chained or muzzled in the Congress, or scorned in the Legislature, it may here spurn the earth with its broadest pinions and wing its flight without let or hindrance through the 'highest heaven of invention.'" — *Matthews*.

"It is evident that the demand for oratory is not less than in former ages, but that a different style of oratory is demanded. Because imagination and passion do not predominate in modern eloquence, but hold subordinate places; because the orator speaks to the head as well as the heart of his hearers and employs facts and logic more than the flowers of fancy; because his most fiery and burning appeals are pervaded by reason and argument, as well as by passion, it by no means follows that his power is curtailed." — *Matthews*.

"In the company of men of letters there is no higher accomplishment than that of readily making an apt quotation from the classics; and before such a body as the Supreme Court these quotations are not only appropriate but constitute a beautiful aid to argument. They mark the scholar — which is always agreeable to a bench composed of scholars." — *Wirt*.

"In every case we find that oratory, like the inspiration of the poet or the brilliant conception of the painter, flows from a source which is beyond the reach of human ken. The essential secret is a gift of God, and in vain

do we try to grasp it and to describe it by seizing its mere forms." — *Matthews*.

Theodore Parker, in reply to an inquiry from a gentleman as to how he could acquire an impressive delivery, replied: "That will depend on qualities that lie a good deal deeper than the surface. It seems to me to depend on vigorous feeling and vigorous thinking in the first place; on clearness of statement in the next place; and finally on a vigorous and natural mode of speech. Vigorous feeling and thinking depend on the original talent a man is born with and on the education he acquires or his daily habits. No man can ever be an impressive speaker without being first a man of superior sentiments or superior ideas. Sometimes mere emotion and feeling impresses, but it soon wearies. Superiority of ideas always commands attention and respect."



HENRY B. PLANT.

Although many times a millionaire, Henry B. Plant in the course of his long business career made even more friends than dollars. When he died, in 1899, every one of his fifteen thousand employees felt that he had lost a personal friend. Mr. Plant early identified himself with transportation interests in the Southern States. As president of the Plant Investment Company and of the Southern Express Company he did more for the development of Florida than any other one man.





## THE LIMITED EXPRESS.

“Soon shall thy arm, unconquer’d steam ! afar  
Drag the slow barge, or drive the rapid car ;  
Or on wide-waving wings expanded bear  
The flying chariot through the field of air.”

*Erasmus Darwin.*

WHEN Commodore Vanderbilt, many years ago, looked over the situation and concluded that the great coming business in this country was the business of transportation, he saw with the shrewd eye of a capitalist seeking profitable investments for his money. When he began his great career as an owner and manager of railroads, he had already accumulated sufficient capital to put himself at the head of great enterprises. But now, half a century later, the question of transportation is one that every young American should look at, though from a different standpoint.

The latest complete railroad statistics are for the year 1897, when there were 823,476 railroad employees of all classes in the United States. These were nearly all men, and generally heads of families, and the common rule is to estimate five persons to a family. So there were more than 4,000,000 of Americans in that year directly deriving their support from railroad salaries. That means more than one person in every twenty throughout the whole country. And that does not take into account, of course, the large number of capitalists, great and small, who live in whole or in part on their profits from railroad earnings. In Commodore Vanderbilt’s day the railroad business was nothing to what it is at present ; and what

it is to-day is only a fraction of what it must inevitably be before the young man of 1900 is old enough to retire from active work.

It is not enough to say that there is a constant demand for the right sort of young men on the railroads of the country ; there is a demand that is never satisfied, and that is increasing every day. For the right sort of young men, remember. There is hardly any other occupation for which the employees must be selected so carefully. No man can be put into a responsible position, in any business, until he has been tried and has proved worthy. But on a railroad every position is a responsible position. No position is so unimportant that the man who holds it may not do untold damage to persons and property if he is unfaithful.

You may have noticed that you scarcely ever see a railroad employee drinking liquor to excess. Indeed, it is the exception, not the rule, to see one of them drink liquor at all. Do you know why that is so ? They are as other men. Among so many there are certainly some who would drink if they could. But they cannot and long remain in railroad employ. The drinkers are weeded out, and men who do not drink are put into their places. No man who is fuddled with liquor can be trusted to carry in his hand the lives of hundreds of people. In the same way the unfaithful ones are weeded out. The man who is not always at his post, who neglects his duty, does not stay. As fast as they are discovered the dishonest conductors drop out. Engineers who "take chances" do not stay long. Station agents who are disobliging to the public soon disappear. And this constant weeding out of unsuitable men maintains the steady demand for young men of the right sort.

You may as well make up your mind at the beginning that if you are to be a railroad man you must be a young man of the right kind. A watchful eye will be upon you when you least suspect it. Look at the express messenger, for example. He has to be as guarded in his conduct as the President of the United States. Should he go into a saloon, into a gambling-house, speculate in stocks, associate with disreputable persons, the superintendent of his division would know of it almost on the instant. A man who drinks or gambles or speculates or keeps bad company cannot be trusted in such a position. Every man, high or low, is watched. You may call it a system of espionage if you choose; at any rate it *is* the system, and a very necessary one. It is largely through the use of this system that our American railroads are so well manned.

On every good railroad there is a watchful eye over everything, at all hours of the day and night. On some roads the man on watch is the president of the road, but not on all. I must explain to you that on some railroads the president is the absolute master of everything, and that on other roads he is a mere dummy. Within a few years there have sprung up in this country powerful financial institutions called "syndicates," one at least of which owns a number of railroads, several large newspapers, and many other business concerns. When a railroad is owned by a syndicate, its president is only a figurehead; the syndicate puts in its own president, and he must be a man who will do exactly as he is told.

To look briefly into the system of railroad management, we will consider a road on which the president is the real power. On the syndicate roads there must be some one to take his place in the general management, or everything would go to ruin. As many owners, as

many heads of departments, as you please, but there must be one head over all. The president sits in his office and directs the important business of the entire road. When he travels, no matter where his private car stops for the night, or for five minutes, he is instantly in telegraphic communication with both the terminals and with all important points. He goes frequently over the entire road to see its condition. Often in going over a division he takes the division superintendent with him, to explain matters. He visits the stations when he can, small as well as large. He goes over other roads to look for improvements. He knows the need of a new station here; of a new bridge there; of new sidings to accommodate the business. No matter where he is, he knows the name of every caller at his head office every day, and the business of each one. He knows the old conductors, calls the station agents by name, often knows the brakemen.

The superintendent of each division, having a smaller territory to care for, knows, of course, even more about the details of his own district than does the president. The head of each department knows his ground and his men. Nothing escapes his eye; nothing is left to chance. The young laborer on the tracks is under the eye of the section boss; the section boss is watched by the division superintendent; the division superintendent by the general superintendent; he by the president, and the president has to give an account of himself to the stockholders.

This constant and careful supervision is the best thing possible for the trustworthy young railroad man. When he does good work his superiors know it. When he continues to do good work he is almost sure of promotion. The watchfulness that detects bad work operates for the

good of the worthy man. No matter whether a man is in the general offices, in the passenger or freight department, on the trains, or working on the track, his superiors know what he is doing.

There are so many departments of railroad work that there are opportunities for young men of all capacities. Education tells in this business as in every other. The young laborer who goes to work on the track when he ought to be in school may rise to be a section boss, but rarely can he hope to go higher. He is not fitted for a higher position. The young man who starts in the business with a good education, at least with a common-school education, has every chance before him. Bright, honest, trustworthy men are constantly needed in every department. There are nearly thirty thousand clerks in the general offices of railroads in this country. More than a hundred thousand men are employed in and about railway stations. The railway telegraph operators and dispatchers number more than twenty thousand.

Every young man who contemplates going into the railroad business should learn telegraphing. It is easily learned, and is sure to be of great service. It is of as much use to the railroad man as is a knowledge of printing to a newspaper man or a writer. This is an art which can be acquired easily at home, by the use of a set of batteries and instruments to be had at little cost from any electrical supply house. It can even be learned on one of the small instruments combining key and sounder made for the purpose, without batteries; but it is much better for two young men living in neighboring houses, or in the same house, to unite and supply themselves with a small but complete outfit, including the necessary wires.

In this way they learn to "receive" more readily, and learn, too, all about care of the batteries, insulating the

wires, and many other points. How to send a message may be learned in a single day; it is learning to "receive" a message on the sounder that requires practice.

A knowledge of telegraphy is often of great assistance in securing a railroad position. There are thousands of small stations throughout the country in which only one man is employed, and he must be capable of acting at once as station agent, express agent, and telegraph operator, the three small salaries combined making a fair income. The ticket-seller, who at a small station is the station agent also, generally has a chance to increase his income by commissions on through tickets. This is recognized as a legitimate part of the business. His duty is to sell a ticket over his own road as far as possible, and for that he of course receives no extra pay. But imagine a railroad station on a small railroad in Georgia running only to Savannah, and a passenger asking for a ticket for Boston. Often the passenger knows nothing about the connecting lines, and will go by whatever route the agent recommends. There are several ways of going to Boston from Savannah, and whichever railroad or steamship line the agent recommends, and sells the ticket over, makes a profit out of the passenger, and is willing to pay the agent for sending him that way. This is so well understood that the large through lines supply the small station agents with blanks on which to make out their bills for commissions.

No matter how small the office, the telegraph operator soon has an opportunity to show his employers what he can do. At the time of the great telegraph strike, some years ago, an unknown young man applied for a position, and was sent to take charge of a small office in West Virginia, on the Chesapeake & Ohio Railroad. The station was a mere shed, far away from any habitation.

The young man knew what he could do with the key and sounder and was amused at being sent to such a place ; but he wanted a start, and did as he was told. He was hardly warm in his chair before a correspondent of a New York newspaper drove across country to his office and filed a newspaper special of about two thousand words. The operator called up the New York office and announced what was coming ; and the operator at headquarters, thinking to confuse the new man, sent him some instructions at giddy speed. That is a cheerful way that fast operators in the city have with their country brethren. But the new man took everything that came, and began his long despatch. He was a whirlwind with the key, and it was soon the New York man who was in trouble. "Please repeat that," he was compelled to ask frequently ; and at length he had to make the humiliating request, "Go slower." The superintendent of the operating-room saw what was going on and took that key himself. It was all that he could do to "take" the message that came like a flash of lightning from the mountain station in West Virginia. When the despatch was finished, an order flew over the wires to the new operator : "You will be relieved from your station to-morrow morning. Please report at the New York office immediately."

There are many branches of railroad work that most young men know nothing about, but which are rich fields for capable workers, nevertheless. Selling passenger tickets is one of them. You would laugh at the idea, no doubt, of a great railroad company sending an agent to try to sell tickets to a prospective passenger. But that is done a thousand times every day. Go to a New York hotel and accidentally mention to the clerk that you are about to start for California. Before the day is over



you will be visited by from two to six agents, each asking you to go by his line, and offering all the inducements possible. "A man ought to know what line he intends to go by," do you say? No, it is not necessary; and ninety-nine times out of a hundred he does not know. All that he knows usually is what line he intends to *start* by.

Let me explain this briefly. Suppose there are four through lines from New York to Chicago, which is the first stage of the journey. They send no agent, because the passenger is sure to have made up his mind what road he is to start by. But from Chicago he may go on westward either by way of Omaha or by way of Kansas City. From Chicago to Omaha there are four direct lines, and from Chicago to Kansas City are four other direct lines; and at the Western terminus each of these roads connects with a large number of other roads for the next stage. A ticket from New York to San Francisco may read over any one of twenty or more different routes west of Chicago. It is these Western roads that send their agents, because often the passenger knows nothing about the different routes, and has no choice in the matter. For east-bound traffic, the process is reversed. Every large Eastern railroad has its agents in the Western cities, doing precisely the same thing.

Then there is the tremendous freight business. The general freight agent has his subordinate agents everywhere. Do you think that a great railroad would be above sending a man to secure half a ton of freight? — one large box? It not only would not be above it, but in many cases it would have a man watching that box to see when it was nearly ready for shipment. No parcel of freight is too small to be worth getting. Every freight department is conducted as if the road's income

was ten dollars a year instead of ten millions. Every theatrical company, every amusement company of any kind, is carefully watched ; small ones as well as large. The Blazing Star Combination, for instance, is about to start on a long tour, stopping first at Buffalo. Propositions are made to the manager to carry his entire company and all their properties to Buffalo for so much. You must have a sleeping-car ? We will put on a sleeper. Some of your scenery is too long for a car ? We will cut the end out of a car. Immediately the message goes to the chief agent in Buffalo, "Blazing Star Combination will arrive Buffalo, December 12. Look out for them." Then it is the Buffalo man's duty to be on watch, and secure the contract for carrying them to the next point if possible. In this way a travelling company is watched all over the country. All freight is watched. I have seen railroad presidents themselves out looking for business. While the Spanish War was in progress there were sometimes five or six private cars of railroad presidents in the Washington station at one time. The presidents desired to carry troops over their roads.

These little-known parts of the business I have mentioned to help you grasp the fact that railroading is not all manning trains and stations. There is an endless variety of railroad work. Whatever department you are best fitted for, whatever department you apply to for a position, remember that you must be ready to go anywhere or do anything. The best places are filled by the best men. Do not expect too much at first ; your first railroad position will not be as engineer of the Limited Express.

"No one knows what he can do till he tries." — *Publius Syrus*.

## A RAILROAD MAN.

“THE typical railroad man ‘runs on the road ;’ he is not the one whose urbane presence adorns the much-heralded office of the railroad company on Broadway, where the gilt letters on the front window are each considerably larger than the elbow-room allowed the clerks inside. Nor is he, generally speaking, the one whom the public or the public’s drayman comes in contact with when visiting a large city station to receive or ship freight. These and others whose part in the complex machinery of transportation is in a degree auxiliary are, indeed, largely imbued with the *esprit du corps* which originates in the main body of workers, but their duties are such that their interest is not especially lively. Even the men employed at stations in villages and large towns acquire a large share of their railroad spirit at second hand, as life on the train is necessary to get the experience which embodies the true fascination which so charms Young America.” — *B. B. Adams, Jr.*

“The railroad man’s home life is not especially different from other people’s. There have been Chesterfields among conductors, and mechanical geniuses have grown up among the engineers, but these were products of an era now passed. Station men are a part of the communities where their duties place them. Trainmen and their families occupy a modest though highly respectable place in the society they live in. Trainmen who live in the city generally receive the same pay as their brothers doing the same work whose homes are in the country.

The families of the latter, therefore, enjoy pure air, lessened expenses, and other advantages which are denied the former." — "*The American Railway.*"

"On most railroads the freight trainmen — engineers, conductors, brakemen, and firemen — are the most numerous and prominent class, as the number of freight trains is generally larger than that of passenger trains; and among these men there are more brakemen than anything else, because there are two or more on every train, while there is but one of each of the other classes. But as the ranks of the passenger-train service are generally recruited from the freight-train men, it follows that the freight brakeman impresses his individuality quite strongly, not only upon the circles in which he moves, but upon the whole train service as well. Passenger conductors are promoted brakemen, and most (though not by any means all) are promoted freight conductors; so that the brakeman's prominent traits of character continue to appear throughout the several grades of the service." — "*The American Railway.*"

"The general character of the personnel of the freight-train service has undergone a considerable change in the last twenty years. Whiskey drinkers have been weeded out, and pilferers with them. Improved discipline has effected a general toning-up, raising the moral standard perceptibly. One reforming superintendent a few years ago, on undertaking an aggressive campaign, found himself compelled to discharge three-fifths of all his brakemen before he could regard the force as reasonably clear of the rowdy element." — *B. B. Adams, Jr.*

"Everybody knows the old story of the brakeman who was refused a free pass home on Saturday night, with the

argument that his employer, if a farmer, could not reasonably be expected to hitch up a horse and buggy for such a purpose. The reply that, admitting this, the farmer that had his team already harnessed up, and was going that way, with an empty seat, would be outrageously mean to refuse his hired man a ride, is none too cute to be characteristic." — *B. B. Adams, Jr.*

"The brakeman gives the prevailing tone to the 'society' of despatchers' lobbies and other lounging-places which he frequents. If he be profane, or fault-finding, or sour, he can easily spread the influence of these unpleasant traits. A lazy brakeman becomes more lazy, because his work is in many respects easy. Having little to do, he demands still less. A foul-mouthed one gives himself free range because many usual restraints are absent. The prevalence of profanity, which aside from the question of sinfulness, hampers a man in any aspirations he may have toward more elevating society, is, perhaps, the worst blot on the reputation of brakemen as a class. Many worthy men among them, and especially among conductors and engineers, have, however, done much to improve the tone of conversation in the trainmen's haunts, and, on the better-disciplined roads, decorum is the rule, and rowdyism is the exception." — *"The American Railway."*

"The brakeman originates whatever slang may be necessary to give spice to the talk of the caboose and the roundhouse. He calls a gravel train a 'dust express,' and refers to the pump for compressing air for the power brakes as a 'wind jammer.' The fireman's prosaic labors are lightened by being poetically mentioned as the 'handling of black diamonds,' and the mortification of

being called into the superintendent's office to explain some dereliction of duty is described by referring to the episode as 'dancing on the carpet.'" — "*The American Railway.*"

"Another feature which involves discomfort and occasionally positive suffering and danger is 'going back to flag.' When a train is unexpectedly stopped upon the road the brakeman at the rear end must immediately take his red flag or lantern and go back half a mile or more to give the 'stop' signal to the engineman of any train that may be following. Even in the blizzard country of the Northwest, where a half-hour's exposure is often fatal, the system of train running is such that the stopping of a train at an unexpected place involves danger of collision if the brakeman does not at once go back and stay back." — "*The American Railway.*"

"The liability of all brakemen to be killed by the cars tumbling down a bank, colliding with another train, and a hundred other conditions, is considerable. But these dangers and discouragements are distributed over such a large territory and among such a large number of individuals that the general serenity of a brakeman's life is not disturbed by them. In spite of them all he enjoys his work; and if he is adapted to the calling, he sticks to it." — "*The American Railway.*"

"The passenger-train brakeman differs from the freight trainman chiefly in the fact that he must deal with the public, and so must have a care for his personal appearance and behavior, and in the fact that he is not a brakeman, the universal air brake relieving him of all work in this line. His chief duties are those of a porter, though the wide-awake American brakeman, with an eye

to promotion to a conductorship, maintains his dignity, and is not by any means the servile call-boy that the English railway porter is." — "*The American Railway.*"

"The freight conductor is simply a high grade of brakeman. His work is almost wholly supervising and clerical, and so after several years' service he becomes more sober and business-like in his bearing, the responsibility of his position being sufficient to effect this change. But he generally retains his sympathy with his old associates who have become his subordinates. His duties are to keep the record of the train, the time, the number of cars, etc., to see that the brakemen regulate the speed when necessary, and to keep a general watch." — *B. B. Adams, Jr.*

"The irregular hours are unfavorable to health. The crews run in trains; if there are forty crews and forty trains daily, each crew will start out at about the same time each day. But if on Monday there are forty trains, on Tuesday thirty, and on Wednesday fifty, it will be seen that the starting-time must be very irregular. Ten of the crews which work on Monday will have nothing to do on Tuesday, and on Wednesday or Thursday will have to do double service. The first trip will be all in the daytime and the next all in the night, perhaps. This irregularity is constant, and it is impossible to tell on Monday morning where one will be on Wednesday. The trainman has to literally board in his 'mammoth' dinner-pail, and his wife or boarding-mistress knows less about his whereabouts than if he were on an Arctic whaling-vessel." — "*The American Railway.*"

"Railroads are like the human race. They have their stopping-places and their termini. But unlike the human race they can make a return journey." — *E. P. Day.*



“A railroad must be clear of obstructions, so that the train can move safely along; and so in travelling through life our consciences must be clear if we wish to move along in happiness and peace.” — *James Ellis*.

“A locomotive engineer must be a tolerably skilful machinist — he cannot be too good — and have nerves that will remain steady under the most trying circumstances. If running a fast express through midnight darkness, over a line where a similar train has been tipped over a precipice and a brother runner killed by train wreckers the night before, he must dash forward with the same confidence that he would feel in broad daylight on an open prairie. When there is danger ahead there is generally just one thing to do, and that is to stop as soon as possible. An instant suffices for shutting off the steam and applying the brakes. Reversing the engine is necessary on many engines and formerly was on all; this would in fact be done instinctively by old runners in any case, but this also is done in a second. After taking these measures there is nothing for the engineer to do but to look out for his own safety. In some circumstances, as in the case of a partially burnt bridge, which may possibly support the train even in its weakened condition, it may be best to put on all steam. The runner is then in a dilemma, and a right decision is a matter of momentary inspiration.” — “*The American Railway.*”

“Over one-fortieth of the population are engaged in railway work. The men called and known as railway kings are not creatures of chance or an accident of the hour; they are men of destiny created to untie the perplexing knots which smaller men have tied in the hope

of selfishly checking the tide of emigration and traffic.”  
— *Justin D. Fulton.*

“Sam Hobart was associated with power and believed in power. Like Abraham Lincoln he had great respect for augers that would bore, and augers that would not bore he had no use for. He had no place in his heart or in his home or on his locomotive for the merely ornamental. He was well-built. He had a stalwart frame, broad chest, big arm and leg, thick neck, good-sized head, and a voice at times a son of thunder and at other times as soft and sweet toned as a child; a large blue eye, auburn hair, upper lip shaved and a long flowing red beard beneath it; the step of a giant, the will of a despot, and withal, with those he loved, the heart of a woman.” — *Justin D. Fulton.*

“A terrible cloud constantly hanging over the head of the engineer and fireman of the fast train is the chance of encountering an obstacle which cannot be avoided and which leaves them no alternative but to jump for their lives, if it does not take away even that. The critical occasions on which engineers are supposed to be heroic often leave them no chance to be either heroic or cowardly, and their heroism must be and is manifested in the calm fidelity with which they day after day and year after year perform their exacting and often monotonous round of duties while all the time knowing of the possibilities before them.” — “*The American Railway.*”

“Of all accidents to employees the most numerous are those which arise in coupling and uncoupling cars. In Massachusetts, in 1888, the employees killed on trains were 391; of these casualties, 154 occurred in coupling-accidents. Fortunately, accidents of this class, though

numerous, are not proportionately fatal. By far the greater part of them result in the loss of a part of the hand; but they are so frequent as to have caused much discussion, legislation, and invention." — *H. G. Prout*.

"The principal duties connected with the management of a railroad may be classified as follows:

- "(1.) The physical care of the property;
- "(2.) The handling of trains;
- "(3.) The making rates and soliciting business;
- "(4.) The collection of revenue and keeping statistics;
- "(5.) The custody and disbursement of revenue.

"Of the five subdivisions of duties indicated above, the first four are usually confided to a general manager, who may also be a vice-president, and the fifth is in charge of a treasurer reporting directly to the president. The special departments under the charge of the general manager are each officered by trained experts. A superintendent of roadway, or chief engineer, has charge of the maintenance of track, bridges, and buildings; a superintendent of machinery has charge of the construction and maintenance of all rolling stock; a superintendent of transportation makes all schedules and has charge of all movements of trains; a car accountant keeps a record of the location, whereabouts, and movements of all cars; a traffic manager has charge of the passenger and freight rates and all advertising and soliciting for business; a comptroller has charge of all book-keeping, by which the revenue of the company is collected and accounted for, and all statistics are generally prepared in his office. A paymaster receives money from the treasurer and disburses it, under the direction of the comptroller, for all expenses of operation. All dividend and interest payments are made by the treasurer under direction of the president and board." — *E. P. Alexander*.

"The quantity and variety of articles used and consumed in the operation of a railroad are so great that it is a measure of much economy to concentrate all purchases into the hands of a single purchasing agent rather than to allow each department to purchase for itself. This agent has nothing to do but to study prices and markets. His pride is enlisted in getting the lowest prices for his road, and the large amount of his purchases enables him to secure the best rates; and last, but not least, in matters where dishonesty would find so great opportunities it is safer to concentrate responsibility than to diffuse it." — *E. P. Alexander.*

"The corporation is the poor man's opportunity. Without it he could never share in the gains and advantages open to capital in large sums. With it, a thousand men, each contributing a thousand dollars, compete on equal terms with the millionaire. Its doors are always open to any who may wish to share its privileges and its prosperity, and no man is denied equal participation according to his means and inclinations. It is the greatest anti-poverty invention which has ever been produced, and the most democratic. But for all that, instead of possessing the unbounded power usually attributed to it, no creature of God or man is so helpless before the so-called great tribunal of justice, the American jury." — *E. P. Alexander.*

"Formerly each railway used its own cars exclusively, and their freights were transferred at each junction point. This involved such delay and expense that railroads now generally permit the loaded cars to go through to destination without transfer, and allow each other a certain sum for the use of cars. Usually this is about

$\frac{3}{4}$ c. for each mile which the car travels on the foreign road. This involves a great scattering of cars and an extensive organization to keep record of their whereabouts and accounts between the companies for mileage.” —“*The American Railway.*”

“The passenger-train conductor has in many respects the most difficult position in the railroad ranks. He should be a first-class freight conductor and a polished gentleman to boot. And in his long apprenticeship on the freight train he has very likely been learning how not to fulfil the additional requirements of the passenger conductorship. In that service he could be uncouth, and even boorish, and still fill his position tolerably well; now he feels the need of a lifetime tuition in dealing with the diverse phases of human nature met with on a passenger train. He must now manage his train in a sort of automatic way, for he has his mind full with the care of passengers and the collection of tickets. He must be good at figures, keeping accounts, and handling money.” —“*The American Railway.*”

“The term ‘Station Agent’ means practically a person in charge of a small or medium-sized station. When one of these men is promoted to the charge of a large city station, either freight or passenger, he becomes really a local superintendent, his duties then consisting very largely of the management of an army of clerks and laborers who must each in his place be as capable as the agent himself. The agent at a small station has a great multiplicity of duties to perform, to sell tickets, be a good bookkeeper and a faithful cashier. He must generally be a telegraph operator and must be vigorous physically.” —“*The American Railway.*”

## THE LEE SCUPPERS.

“To all nations their empire will be dreadful, because their ships will sail wherever billows roll or winds can waft them.” — *Dalrymple*.

WITH the enormous length of coast line of this country, not only on the two oceans, but also on the Gulf of Mexico and the Great Lakes, there can never be any lack of material for manning the vessels of our merchant navy. A coast line breeds seamen. It is comparatively rare for boys or young men of the interior to be seized with the desire to go to sea. Sometimes the reading of sea stories gives them the desire; but when the desire reaches the extent of leading them to the seaboard they are at a disadvantage, because they know nothing about boats or sails. The boy of the seaport town is almost a sailor when he first goes on board. From his first canoe, which he sails in smooth water, he advances to a sloop or a cat-boat. The conversation he hears is largely about ships, the sea, and the weather. His own father or his chum's father is always just going away on a cruise or just expected back. He knows all about mackerel backs and mare's tails, and can foretell the weather. He meets no opposition at home, because, in seaport towns, some part of the deck is a young man's natural place.

All young Americans who know and love the smell of salt air will have cause to remember the year 1898. It is inevitable. The destruction of the *Maine* was the tragic signal for the unfurling of the stars and stripes on every sea. Our merchant-marine had been slumbering for fifty years; that shock in Havana harbor awoke it. Since the Civil War the United States navy has been an

unknown quantity to a majority of the people. In 1898 it took possession of the heart of the nation. What American schoolboy cannot draw a recognizable picture of the *Oregon*? What audience, from Bangor to Los Angeles, will not burst into a shout at the mere mention of Dewey at Manila, or of Sampson and Schley at Santiago? Of Hobson? Of Wainwright? The navy suddenly became dear to the people; and the warships opened the way for merchant ships. With the acquisition of the Philippines, the Sandwich Islands, and Porto Rico, and with Cuba under American protection, the foreign trade of the country must increase vastly, and the number of American ships must also increase. Manila is only six hundred miles from China, where the opportunities for trade are almost boundless.

The fiscal year of the national department of navigation begins on July 1. In the first nine months of the fiscal year following the Spanish War, that is, by April 1, 1899, the influence of this new state of affairs was already felt. The vessels built during those nine months numbered 632, of 169,794 gross tons. In the corresponding period of the year before, only 541 vessels were built, of 58,159 gross tons. In the fiscal year beginning July 1, 1896, in the corresponding nine months, 460 vessels were built, of 125,035 tons. Many of these new vessels of 1899 were for the coasting-trade, but there were a number of steel steamships for the West Indian and Hawaiian trades. Twelve of the new vessels were named after Admiral Dewey, six after Rear Admiral Sampson, two after Rear Admiral Schley, one for Ensign Worth Bagley, one for Captain "Bob" Evans, two for General Wheeler, and one for Fitzhugh Lee. There were three *Oregons*, one *Maine*, two *Iowas*, two *Olympias*, one *Rough Rider*, and two *Manilas*.



All this goes to show that American shipbuilding began to increase rapidly even before the new colonies were in a condition to invite new trade; and that the demand for young American seamen must quickly increase correspondingly. In 1898 there were 21,174 American vessels engaged in the foreign and coastwise trades, and the number now increases by more than one thousand every year. The question is not whether there are openings for American boys and young men in this direction, but how they can best fit themselves for the work and secure positions.

The young resident of a seaport town needs little instruction about preparing for a life at sea. He knows, to begin with, that every shipmaster of his acquaintance complains of the hardships and small pay, of the long separations from home and friends, and professes, at least, to wish himself in some other business. But that does not deter him. Men in every calling complain that theirs is worse than any other. He is familiar with boats and salt water. He has friends on board many craft, both as seamen and as masters, and when he reaches a suitable age he has little difficulty in finding a berth. Gradually he works his way up, taking pains to learn the science of navigation as he ascends, and eventually he becomes mate or master himself.

With all his boyish knowledge of boats and water, he soon finds that there is much more for him to learn aboard ship than he had any idea of. The young American usually is not willing, like many foreigners, to remain an able seaman for life. He has higher ideals. His experience before the mast he regards simply as a stepping-stone toward a master's certificate. And by keeping his eyes open he soon sees that there is much more for a shipmaster to know than how to guide his

ship by the sun and stars. His ship, let us imagine, is a steamship bound for a West Indian port, and by bad reckoning or confusion of lights is stranded on the rocks, but by the use of kedge anchors is pulled safely off again without apparent damage. The foreign sailors on board would go through such an experience a dozen times without having the least idea what the master must do. They know why he sounds the wells to find whether she is leaking; why he takes soundings fore and aft and amidships; why he lowers a boat to put out a kedge anchor, and puts the anchor's cable on the steam winch; but beyond those necessary acts of seamanship they do not take the trouble to learn what must be done.

The bright young American sailor, with an eye to learning the business and improving his condition, sees that the ship, although not leaking and apparently not injured, is immediately headed for the nearest port at which there is a consul of the country whose flag she flies. Why is this? he asks one of the officers; and he is told that when a ship is stranded, no matter how lightly, nor how slight the damage, she is not legally considered seaworthy until she has been surveyed by a board of survey. This arouses his interest, and when the ship reaches port he is wide-awake. He sees that the master's first step is to cable the facts to his owners and ask for orders. That slight accident may change the whole course of the voyage. Then the master fills out a blank for the consul of his country, stating that his ship has been stranded, and asking for the appointment of a board of survey. Does not the master know, he asks, whether his ship is seaworthy? Certainly, he is told, the master knows; but after a stranding all a ship's contracts are void until she has been surveyed and pronounced safe. Any or all of her crew may leave her,

notwithstanding the papers they have signed ; her insurance policies are void ; there is no longer any insurance on ship or cargo unless the master follows exactly the course prescribed by law. He learns that the consul appoints the masters of three other ships lying in the harbor to make the survey. He sees them come on board and examine her inside and out, and have the engines set in motion, and send down divers to examine her bottom if necessary. The mate tells him that they have pronounced her seaworthy and that she is free to resume her voyage. By keeping his eyes open and asking a few questions he learns all about it. And that is only one out of a thousand cases in which everything depends upon the master's knowing just what to do.

Some young man who lives far from the coast may have a desire for the sea, and may wish to know how he, without the advantages of the salt-water boy, may accomplish his object and get a start on board ship. He can always manage it if he sets his mind to it ; but there are right ways and wrong ways of going about it. Not only a boy, but a young man also, should give his parents his fullest confidence in such a matter, and seek their advice. The change from the life of an interior town to a life on the ocean is almost equal to entering another world. But if you have the desire for it, and the way is clear for you to seek the chance to try, then sit down the very first thing and read Dana's "Two Years before the Mast." Do not take a single step until you have read that book. It is an educated young man's description of his two years' experience as an ordinary seaman on a sailing-vessel.

Mr. Dana's family, as you will see when you read the book, had sufficient influence in Boston to go directly to the owners of a line of sailing-ships and secure him a

position as a sailor. That is by all means the best way. If your parents are not acquainted with any such firms there is still a way to manage it. They know the merchants from whom they buy their goods, and one of those merchants, at their request, will give you a note of introduction to a wholesaler with whom he deals. That wholesaler in turn will introduce you to some shipping-firm.

But you need not take such an heroic step as Mr. Dana took in shipping at once for a long voyage around Cape Horn to California and return. He chose a sailing-vessel, and so should you, because the sailors on a steamship learn very little of seamanship. Your trial trip should be made on a coasting-vessel, where you need not bind yourself down irremediably for a long apprenticeship to a business that may prove distasteful to you. There is no lack of coasting-vessels, and there are always berths to be had on board of them. Certainly there are arguments that might be urged in favor of shipping at once for a long voyage. The impossibility of backing out after starting is one of them. But you should not go to sea without making up your mind to endure many hardships.

How should you prepare yourself, mentally, for this work? You should have, at the very least, a good common-school education. Nothing less than that will answer; much more than that is so much the better. Do not think of going to sea without at least that much of an education. When you once become a sailor your school-days are over. And you will not desire to be a 'fore-the-mast hand all your life. Your ambition should be to become a shipmaster, and you must know enough not to disgrace yourself through your ignorance when you reach that position.

The special training for the life will come to you gradually. The best place to learn the art of navigation is on board ship. There are schools where it may be learned theoretically, but no school is equal to the deck where you see it practised every day. On your first short voyage much of your time will be occupied in "getting your sea legs on." But if you keep your eyes open you will learn something every day, almost every minute. No theoretical knowledge of navigation that you could acquire on shore would fit you at the beginning for a higher position on shipboard. Once you know the duties of a sailor, know something of the sea and of ships, a knowledge of navigation will be indispensable to you. *Then*, when you have learned the practical part, your future is very largely in your own hands. You can remain an ordinary sailor all your life, or you can by study and observation fit yourself for a master's certificate.

Do you understand the system of advancement in the mercantile navy? Every ship is required by law to have at least two navigating officers on board, that is, two men who are able to determine the ship's position by observation of the sun or stars with instruments. Usually there are three, the master and the first and second mates. How do those men rise to those positions? Any able seaman who has a sufficient knowledge of navigation may go before the Government Board and apply for a second mate's certificate. If he passes the examination successfully he receives the certificate. After a certain experience as second mate he may apply for a first mate's certificate. That examination is a little harder. Then, after a certain time, he may apply for a master's certificate; and that examination is of course the hardest of all. Do not imagine that holding a master's certifi-

cate makes a man the captain of a ship. Without the certificate he cannot command a vessel, but having the certificate he still has to secure a position as master. Many men with master's certificates sail for years as first or second mates before finding a suitable opening as master.

After the first short voyage is time enough to begin the study of navigation. You will have a better idea of it by that time. From any elementary work on the subject you can learn to box the compass; that is the navigator's alphabet. As soon as your master and mates see you trying to learn, they will take an interest in showing you. In a short time you will be able to take an observation. That is only a small part of navigation, but it is the part that you see most of at the beginning. And it is a highly interesting study.

To make yourself thoroughly proficient, you must have experience both with sailing vessels and with steamships. At present the sailors on our American steamships are very largely foreigners, because foreigners are satisfied with lower wages than Americans will accept. But the time has been when American ships were manned by Americans, and there is a good prospect of that time returning. The foreign sailors, coming usually from the ignorant peasant class of the Continent of Europe, have little ambition to improve their condition. Only a small percentage of them make any effort to advance. They are satisfied as they are, and leave the higher positions open to ambitious young Americans.

In every calling it is important for a young man to save his money; in this calling, if the man would go to the top, it is imperative. The salary of a shipmaster is not large. The pay of the captains of the great transatlantic liners is ridiculously out of proportion with their

tremendous responsibilities. The shipmaster's best opportunity lies in becoming part owner. Ships are built usually by stock companies, and a small sum of money will buy a few shares. The company always prefers a captain who owns at least a few shares in his ship. The part ownership makes him more careful, more anxious for financial success. By saving his money he can increase the number of his shares and consequently increase his income. A little trading on his own account, buying at one port and selling at another, is another of his opportunities; many owners permit their captains to do this. The shipmaster who saves nothing wastes his opportunities. Like the ordinary sailor, and like most other people, he must work and save.

“ Hearts of oak are our ships,  
Hearts of oak are our men.”

*David Garrick.*



## BEFORE AND ABAFT THE MAST.

“BEACH-COMBERS and shore-huggers will tell you the poetry has gone out of it all, and with much shifting of their quids and hitching of their tarry trousers will try to persuade you that steam has ruined the genuine sailors of story and song, but this is merely transpontine nonsense, for above and beyond everything, he who commands a ship, smoker or sailer as it may chance, must first of all be a seaman. The demands of modern sea life have increased the responsibility of the mariner, and in a like measure the professional attainments required are deeper, broader, and higher than ever before.” — *J. D. J. Kelley*.

“First-class ships muster from twelve to fifteen men in each watch, and all of these are shipped as seamen. Of course the majority are such only in name, though there is always a definite number of sailors among them. All hands, from the skipper to the scullion’s mate, must ship at the beginning of each run — must ‘sign articles,’ as it is called, before the Board of Trade shipping-master.” — *Kelley*.

“As the law of marine insurance stands at present it offers temptations to carelessness and fraud: instead of being merely indemnified against loss a shipowner may make a profit by the wreck of his vessel. If the owner of the cargo sails the ship he can insure the freight and 10% profit on the freight. She is lost, say, insured for the round voyage, shortly after leaving port. In that case he can recover the value of his ship, and of the

freight, and 10% out and home, while from the day his ship came to grief his crew have no claim for wages against him, and he escapes in addition the cost of their keep and board charges. Under these circumstances it is not wonderful that he prefers a total to a partial loss. The law should be altered to make the owner more largely answerable to the men and to their families for the damage he has inflicted on the crew shipped in an unseaworthy vessel." — *Richard Rowe*.

"There is far more force in the statement that the rating of A.B. is often given an incompetent man. To remedy this it has been suggested that an O.S. should not be rated A.B. until he has passed before the officers of the ship in which he is serving, receiving their first or second class certificate, according to the number of his 'good's,' 'fair's,' and 'passable's,' on an examination on the following subjects: Furling sails, reefing sails, steering with the wheel, taking lead, knotting and splicing, sending up and down topgallant and royal yards, reeving running-rigging, stowing fore and aft sails in a stiff breeze, working anchors and cables, use of palm and needle, pulling a strong oar." — *Richard Rowe*.

"To become a second mate (British) it is only necessary that the candidate be able to read decently, shuffle through the first simple rules of arithmetic, and work a day's work." — *Mrs. Janet Taylor*.

"Having served as second mate for a year, he goes to school again, to go in for his first mate's certificate; and it is absolutely necessary to cram him, since having received no intellectual training he has nothing but his memory to trust to; and the same process is repeated when he wants to pass for master." — *Richard Rowe*.

"If American shipowners are induced to become more generous to and less exacting of their officers; if they will become less avaricious and more regardful of the human lives on board the floating coffins they send to sea, their shipmasters and mates will become more familiar with the laws governing the sailing of vessels and less cruel to poor Jack, and my object will be accomplished." — *J. Grey Jewel*.

"Many boys determine in early life that when they come to man's estate they will be sailors. Reading works of fiction, generally yellow-covered literature written by persons who have never been to sea and have no practical knowledge of the subject, they are impressed with the poetical or romantic features of the sailor's life, without any conception of its peculiar hardships. If the author of such a work happen to have been a sailor, like Captain Marryat, for instance, he shows up the comic phases of the ship's life, avoiding those that are serious, and smooths over the difficulties, thus leading his boy readers to imagine that the sailor's life is one of fun, frolicking, and jollity, with the advantage of seeing many distant lands and places." — *J. Grey Jewel*.

"From an extensive experience among seafaring men, and from personal knowledge, I can undeceive my young readers and assure them that the life of a sailor is not what they imagine, and that the position of a boy who has learned to be a sailor is peculiarly unfortunate. It does not matter what a boy's origin may have been or what his previous education or manner of life, when he consents to ship before the mast and adopt the life of the sailor he must bid good-by to home and all its comforts — to father, mother, relatives, and friends — to education, decency, and refinement, to real independence

and to the restraints of religion and of good society — to brotherly love and sisterly affection.” — *J. Grey Jewel*.

“He will find none of these in the ship’s fo’castle among his shipmates, and very little, as a rule, in the ship’s cabin, among the officers. He will soon discover that he will have to serve two masters at least, the captain and his mate, who are merciless in their exactions. He will be ordered to do the most menial services, such as blacking and greasing the officers’ boots, washing their clothing, slushing down the masts, washing and scrubbing out the officers’ rooms, mopping the decks, and other services still more unpleasant. I do not specify these duties as degrading, but as contrasting with those romantic expectations which lead many boys to choose a seaman’s life. Instead of thanks and kind words for these distasteful tasks he gets curses and blows and abusive epithets.” — *J. G. Jewel*.

“Many a gallant sailor has been around the world who has never been in it.” — *Robins*.

“You can no more make a sailor of a landlubber by dressing him up in sea-toggery and putting a commission in his hands than you can make a shoemaker of him by filling him with sherry-cobblers.” — *Farragut*.

“There is much in the character of a sailor which leads us to make great allowance for his irregularities — his frankness, his good nature, his courage, his attachment to his country, all enlist us in his favor.” — *Mogridge*.

“A poor man may go to sea because he stands a chance to come home rich; but a man who has money in hand, or in prospect, if he goes to sea is a fool. If being sent to sea has been pronounced by the officers to be transporta-

tion, being captain of the ship may be truly designated as solitary confinement." — *Marryat*.

"To be at sea, withdrawn out of the reach of innumerable temptations, with opportunity and a turn of mind disposed to observe the wonders of God in the great deep, with the two noblest objects of sight — the expanded heavens and the expanded ocean — continually in view, and where the interpositions of divine providence in answer to prayer occur almost every day ; these are helps to quicken and confirm the life of faith, which in the greater measure supply to the religious sailor the want of those advantages which can only be enjoyed upon the shore." — *Newton*.

"A man who wants to be fully employed should procure a woman and a ship, for no two things produce more trouble, — if perchance you begin to rig them they can never be rigged enough." — *Plautus*.

"Praise the sea, but keep on land." — *George Herbert*.

"He that will learn to pray let him go to sea." — *George Herbert*.

"According to immemorial usage the survivors proceeded to overhaul the chest of the departed, to secure any keepsakes that might be left for the mourning family, to make sure that any of their love-letters might not fall into the hands of the captain, to the confusion of high-born dames at home. As in duty bound, everything was confiscated save an old deck of cards, that were of no use to honest folk, for they had the private marks of the knave in the dog-eared corners. They were accordingly left for cabin use. To soothe the feelings of those who

might come after, the words 'Too late' were inscribed on the lids, and we closed proceedings with the song :

“ ‘One piece of beef for four of us,  
Not enough for two of us;  
Thank Neptune there 's no more of us,  
God save the king.’ ”

*Wm. M. Davis.*

“ The stocks of the outfitters who provide for crews are curious : Hammocks, beds, and bolsters of tick so brilliant that surely they must be intended to tempt loud-tasted Sambo to recline upon a couch of sunflowers ; woollen stockings, boots, black and buff, with soles that look as if they would not wear out on this side of the crack of doom ; breeches of cloth and of duck, of canvas and oil-skin ; check shirts, guernseys, blue and gray, and zebra-striped jerseys ; variegated comforters ; black neckties ; piles of handkerchiefs that look like beds of red and yellow wall-flowers ; black-satin waistcoats, rough flap pocketed ; bone or metal buttoned waistcoats, sleeves like ostlers ; coats and jackets of dreadnaught and dungaree, oil-skin and tarpaulin ; straw hats, fur caps, Scotch bonnets, pots and pannikins that gleam like freshly-polished silver.” — *Richard Rowe.*

“ Seamen's wives and children are certainly a pitiable class in the community. The wives of landlubbers in receipt of weekly wages often get an insufficient proportion of the sum for household expenses ; the pinched, weeping wives who peer into the public houses in which their husbands are sucking in liquor like sponges are a pathetic spectacle ; but the seaman's wife very frequently has not found a chance of getting any money for the house except what she earns herself. The owners of

the ship in which her husband is, often will not allow her a monthly note for his half-pay, or refuse to pay it on some slight pretext; or perhaps, when the man comes home, crimps get hold of him while he is waiting for his pay, and he has to ship again a beggar — let us hope a remorseful one — without having seen his family or contributed a farthing to their support.” — *Richard Rowe*.

“The way in which sailors are housed varies like the way in which they are fed; bad, as a rule, is the best, although deck houses certainly look more comfortable, and, if decently kept, smell sweetest.” — *Richard Rowe*.

“Roll on, thou deep and dark blue ocean, roll!  
Ten thousand fleets sweep over thee in vain.  
Man marks the earth with ruin; his control  
Stops with the shore; upon the watery plain  
The wrecks are all thy deed, nor doth remain  
A shadow of man's ravage, save his own,  
When, for a moment, like a drop of rain,  
He sinks into thy depths with bubbling groan,  
Without a grave, unknell'd, uncoffin'd and unknown.”  
*Byron.*

“Whoever commands the sea commands the trade; whoever commands the trade of the world commands the riches of the world, and consequently the world itself.” — *Sir Walter Raleigh*.

“I never was on the dull, tame shore  
But I loved the great sea more and more.”

*Bryan W. Procter.*

“One more thing remains to be mentioned, the lack of provision for decency made for men before the mast. Jack thinks little of such a state of things — he is used



to it; he is simply doing as our rough tarpaulins did hundreds of years ago; but it disgusts the landlubber. A sailor would be every bit as good a sailor, and certainly from the gain of self-respect would turn out a better man, if he were not expected to do everything like a monkey.” — *Richard Rowe.*

“ When the glass falls low,  
Prepare for a blow;  
When it rises high,  
Let all your kites fly.”

*Old Sailor's Rhyme.*

“ The shipmaster should be familiar with all the duties pertaining to his position. He should be an example to his men, frowning down profanity and vices of all kinds; he should preserve a dignified manner and avoid outbursts of temper; he should require strict discipline among his officers and men, and implicit obedience from the men to the legitimate orders of the officers, as the safety of the ship and all on board frequently depends upon instant obedience to orders.” — *J. Grey Jewel.*

“ The law should be so amended that conviction will certainly follow when it is made evident to a jury that the seamen have been cruelly treated. If something of this kind is not speedily done the seamen navigating American vessels will in a few years be entirely foreigners; after which it will not be many years before our whole commerce is in the hands of foreigners — as indeed much of it is already, the great bulk of American trade being now carried in foreign bottoms.” — *J. Grey Jewel.*

“ Surely oak and threefold brass surrounded his heart who first trusted a frail vessel to the merciless ocean.” — *Horace.*

“A ship-captain has a well-understood authority to inflict punishment, or order it to be inflicted, on seamen who disregard or disobey legitimate orders, when the carrying-out of such orders is necessary to the navigation or the safety of the ship or cargo. Proper punishment for these offences, such as placing in irons, solitary confinement between decks, or a diet of bread and water for a reasonable time, will generally bring the offending party to speedy and humble terms, and cannot be said to be either cruel or unusual, nor would it appear to be done from malice, hatred, or revenge, so long as a justifiable cause for the infliction of the punishment exists.” —  
*J. Grey Jewel.*

## ELECTRICITY.

“If you have great talents, industry will improve them; if you have but moderate abilities, industry will supply the deficiency.” — *Sir Joshua Reynolds*.

ALTHOUGH it is common to look upon the electrical field as one of the very best opportunities for young men, still it remains true, in this as in all other occupations, that the prizes are sure to be taken by the men of brains and industry; half-hearted workers, drones, idlers, cannot expect to pick the plums out of the rich electrical pudding. It is a great business for men who will make themselves great; for little men it is no better than any other. The vast size of the field, the wonderful apparent chance for new and useful inventions, will not of themselves turn an idler into a millionaire, though they offer great things to the intelligent worker. If you set out to be a commonplace man you can make your ten dollars or twenty dollars a week as well in a blacksmith shop as in the great electrical field. Do not imagine that because it is a great business it will make a great man of you: that you must do for yourself.

In this perhaps more than in any other business ceaseless reading and study are necessary. After you have “learned it all,” if you take a vacation for a year you will find yourself far behind the times. Almost every day new discoveries are made, new applications of electrical force. Everlasting study and observation and experiment are the prices of success. If you become an electrician, and have any hope of becoming a great one, do not expect to come to an end of your studies and



THOMAS A. EDISON.

Thomas A. Edison is one of the most distinguished electricians and one of the greatest inventors of the age. The manufacture of his various electrical devices required the invention of many entirely new machines, all of which were the products of his wonderful brain. He is the inventor of the phonograph, and of many improvements in the electric light and the telephone. His quadruplex and sextuplex transmitters have multiplied the working capacity of telegraph wires. Mr. Edison's first work was selling newspapers on railway trains. He has acquired a large fortune, and lives in Orange, N.J.



experiments as long as you are in the business. If you have the real electrical fluid in you, you will have no desire to stop.

There is every probability that before you are fifty years old, that is, within the next twenty-five or thirty years, we shall laugh, or you will, at the crude electrical methods of the year 1900. The force will be put to uses not even thought of now. Instead of two and a half billions of dollars invested in the business in this country and Canada there will doubtless be twenty-five billions.

That is not an exaggerated estimate of the probable increase of this business. Twenty-five years ago we should have thought two and a half billions a wild flight of fancy. A quarter of a century ago electricity, as applied to practical uses, meant the telegraph. Large sums of money were then invested in telegraph lines, and if we had spoken of billions in electrical appliances we should have had in mind nothing but more telegraph lines. Even telegraphing was still in its infancy. Thomas A. Edison had then just invented the system of quadruplex telegraphy, by which four messages were sent over one wire at the same time, two in one direction and two in the other. That was one of the first great steps forward in the rapid transmission of messages. In 1875 I spent a day with Mr. Edison, and another day with Gen. Thomas T. Eckert, now president of the Western Union Telegraph Company, trying to get a plain explanation of that system for publication. They then were, and perhaps still are, the greatest telegraphic experts in the country; but it is not too much to say that neither of them could explain the quadruplex system. They knew that "it worked," but very little beyond that. "We are all groping in the dark," Mr.

Edison said. "I am a mere child in dealing with electricity. I know that certain combinations will produce certain results, but I cannot tell you how or why they produce them. We have much to learn." Since then Mr. Edison has been experimenting for twenty-four years, and not only experimenting, but inventing and making the machines to experiment with; and he still says, as every other great electrician says, "We have much to learn." There never was such a chance for young men of vim and brains.

But if there is still a haze enveloping electricity in the abstract, the application of electrical energy has been reduced almost to an exact science. Electrical force and electrical energy are the powers that we put to practical use. The newly expressed opinion that a bolt of lightning which shivers an oak tree to fragments has no more than the power of three horses, which is merely an opinion, has nothing to do with setting up a plant to operate an electric railway, which is a practical and profitable fact. The efficiency of the dynamo has reached ninety-eight per cent., which is now supposed to be the limit. If you can invent a dynamo in which the other two per cent. of power is saved there is a fortune within your grasp. Or you can give your attention to coal. It is with coal that we produce electrical energy. At present the coal must be converted into heat, the heat converts water into steam, the steam drives an engine, and the engine moves a dynamo which produces the electrical energy. If you can devise a process by which the coal may be converted directly into electrical energy you will no longer need any advice from me in electrical matters.

If you are in the least interested in this subject, if you have any idea of taking up the great study of electricity,



nothing would increase your interest so much, or give you so good an understanding of what the practical application of electrical energy means, as a visit to one of the great electrical laboratories. You would learn more there in a day than a shelf-ful of books could teach you. But as that is out of the question for most young men who live far from the great centres of population, I shall tell you some things about Mr. Edison's laboratory in Orange, N.J., for three express purposes: In the first place to show you how a man works who sets out to be "great" in anything; in the second place to show you what is done in such a laboratory; and in the third place to introduce you, as far as I can do it on paper, to a set of young men, some of them of your own age, some as poor no doubt as any young man can well be, who are learning the business in the laboratory, and who, while they profess to be nothing but apprentices, are so expert in electrical matters, so quick and bright and ready, that any other young man with electrical aspirations must look upon them with wonder.

Mr. Edison's establishment, although called a laboratory, has the appearance of an immense factory, composed of many huge buildings grouped together, all standing in a large yard surrounded by a high fence, with the gate always locked. This privacy is necessary not on account of secrets within that might be disclosed, but because the large number of visitors, if freely admitted, would interfere with the workmen.

The visitor sees at once that the whole place is full of machinery the like of which he never saw before. Whenever Mr. Edison invents a new electrical appliance he has to invent also the machines for making the various parts, because such machines are not to be bought anywhere. And to show that there are failures as well as

successes in such work, visitors are taken to see the "cemetery," the back yard about half an acre in extent into which the unsuccessful machines are thrown. This whole place is piled deep with rusty machines that were intended to accomplish great things, but proved worthless. "It is quicker and cheaper to invent a new machine than to tinker with an old one," is one of Mr. Edison's sayings, and the failures are thrown away without mercy.

Everywhere are signs of the industry of the owner of the whole place. Here are long rows of delicate machines, scores of them, with tiny grippers like fingers, that take hold of the little pearls to be used in the phonographs, and, pressing them against revolving emery wheels, not only grind them to the shape desired, but actually "feel" them to ascertain whether they have been ground enough. Mr. Edison invented all of those. In another room are long bundles of bamboos from every part of the tropical world — some from India, some from Ceylon, others from the West Indies, from South America, from Mr. Edison's winter place in Southern Florida, which he seldom visits. He has taken great pains to gather these from all parts of the world, to find the best variety for use in his incandescent lamps. The great problem with incandescent lamps from the beginning has been the material of which to make the little bow inside the globe, through which the current flows. Charred bamboo has served better for this purpose than any other material yet tried; but it is so brittle that it is difficult to handle, and the electricians are constantly seeking a new and better material. Some bamboos are better for the purpose than others, however.

How does Mr. Edison find the best bamboo for this purpose? The visitor is conducted through a long, wide hallway in the centre of one of the buildings, and sees fifty electric lamps suspended in rows from the ceiling.

Some are burning brightly, some seem to be going out, others have gone out. This collection of lamps is called "the survival of the fittest." Every one of the lamps has an are made of a different variety of bamboo. They are all put up at the same time and connected with the current, and left burning night and day till they burn out. Those that burn longest and brightest are made of the best material.

One of the most interesting rooms in the laboratory, and one that gives a good idea of Mr. Edison's habits, is called "the store." It is a large room, surrounded with shelves, drawers, and cases. Here everything is kept that an electrician could by any possibility need for making experiments, and a thousand things that it seems impossible he should ever need. There are not only wires, and tools, and material for charging batteries, but such unusual things as soap, candles, pins, hairpins, buckles, cord, knives — almost every small thing imaginable. When it was first stocked he offered five dollars to any of the employees who could name anything that was lacking, and one of his "boys" suggested clothes-pins, and got the money.

This "store" is for Mr. Edison's personal use. Although he is a millionaire, and has a beautiful home close by, when he is thinking out a problem he forgets everything else, and often does not go home for days, sleeping on a cot in a little room adjoining his office, and having his meals brought in when his secretary insists that it is time for him to eat. On such occasions it is one man's business to see that his hat and coat are hung in their proper places, for he throws them down anywhere, and might at any moment start for home without them, as he has often done. While lying on the cot his brain is not idle. In the middle of the night, when the great

shops are deserted and dark and quiet, he often turns on the lights, starts the machinery, and sets to work. It is for such times as this that the "store" is provided. While an idea is fresh with him he must not be hampered by the lack of some trivial article. The men find him at work when they arrive in the morning, coat off, lights burning, the machinery in motion. One night he was found seated in the large room where the phonographs are set up for trial, with all the machines talking to him like a flock of parrots. Was he amusing himself? Oh, no! There was one note in their voices that did not quite suit him, and he was thinking how he might improve it.

Can you imagine what it means to prepare the machines for making new electrical appliances? First to invent them, then to make the drawings, then to oversee their construction and setting-up? Mr. Edison has done enough of such work to employ a dozen ordinary men throughout their whole lives; and yet with him it is only a side issue, to make his main inventions practicable. The incandescent lamp is an example. Of course you know that the air is exhausted from the glass globe; that there must be a perfect vacuum, or the light would not burn. How was he to exhaust the air? It might be done with the ordinary air-pump; but to pump each one singly, by hand, would make the lamps too expensive for common household use. He set to work to design a machine that would exhaust the air from fifty or a hundred of them at a time; and if you were to see that machine in operation I am sure you would think it more wonderful than the incandescent light itself. It is a very large machine, nearly as large as a small sleeping-room in a city flat. When the glass globes are attached to little projections from its sides

and it is set in motion, streams of quicksilver begin to flow through the globes and through large glass tubes between them. It looks like a little Niagara of quicksilver. At first this is pure quicksilver. In a few minutes it is quicksilver full of air-bubbles. Gradually the bubbles disappear again as the air is exhausted from the globes. The man in charge knows when they are "done" by the appearance of the stream. Then the openings are sealed automatically and the lamps, when taken off, are given the finishing touches that make them ready for the market.

The young men who work in this great laboratory, twenty or thirty of them, give every indication of being thoroughly in love with the business. You could not find in Oxford, or Cambridge, or Harvard, or Heidelberg, an equal number of young men who give greater promise of success. They are for the most part rosy-cheeked and full of health and spirits. Nothing pleases them better than to explain to a visitor any of the apparatus that he does not understand; and they are able to explain everything about the premises.

On my last visit to the place Mr. Edison detailed one of the young men to show me a great magnet that had recently been set up for experimental purposes; and the young man convinced me in a very few moments that he was as familiar with magnetism as with electricity. He led the way to a small room at the end of one of the long shops, where stood a magnet in the usual horse-shoe shape, but nearly three feet high. In front of it was a huge block of iron, lying upon the floor, perhaps two feet by three, and a foot and a half thick. On this metal block stood a large iron weight weighing about fifty pounds, with a ring in the top. My young guide asked me to lift the weight, which I did with ease. He

lifted it also, to show that it was entirely detached from the larger block. Then he pressed a button, by which wire connection was established with the magnet, and asked me to lift the weight again. I might as well have tried to lift Trinity Church steeple. The two were bound together by the power of magnetism almost as firmly as if welded. He assured me that if a hook were put in the ring of the weight, and sufficient power applied, the weight and the great iron block would rise together; but when he pressed another button, shutting off the current, the weight was free again.

"There is a fortune for somebody here," he explained. "Like many other electricians, we have experimented a little with magnetism for coupling cars. With a powerful magnet working upon the iron buffers they would be as firmly bound together the moment they touched as if chained, and they could be uncoupled in an instant. It is all plain sailing in theory, but no one has yet devised a practical application of the power. It is sure to come in time, though."

He took me to a set of scales six feet long and four or five feet high, so delicately adjusted that when a hair was laid in one of the shining pans that side instantly went down. And when he showed me a row of equally delicate instruments in glass cases, and explained that they were mounted on a brick foundation fourteen feet deep, so that they might not be affected by the jar from passing trains, he went into an intricate mathematical calculation to explain the radius of earth motion from a given weight passing at a given rate of speed.

"You seem to understand the entire business," I said to him, surprised that so young a man could have accumulated so much technical knowledge.

"Ah, if I only did, sir!" he replied. "I am only in

the primer class yet. You should see how much there is to be learned in such a place ! ”

This young man, of whose brightness and knowledge of the business at an early age I can give you only a slight idea on paper, was no better than the others, no quicker, no more likely to succeed. They all had a wonderful example of skill and industry before them, and all were seemingly bent upon making their mark.

So may you make your mark in the electrical world, if you set about it in the right way, and give your whole mind to the work. No half-hearted work will do. If you desire an electrical education you can get it in this country better than in any other. There are any number of good electrical schools. Write to the American Institute of Electrical Engineers, in New York, and the secretary will give you information about them. But do not upon any account go into the work with the idea that because electricity is a great field it will make a great man of you without plenty of hard work.

“ Accuse not nature : she hath done her part ; do thou but thine.” — *Milton*.



## KEY, BATTERY, AND DYNAMO.

"THE prevailing popular opinion that no one knows what electricity is, which has been current for so many years, is no longer strictly true. The laws of electricity are as fully and as clearly understood now as those of heat, light, and gravity; and in its application to the various purposes for which it is employed, calculations based on these laws can be made with the greatest accuracy." — *Atkinson*.

"When, not many years ago, it was discovered that the principle which we call energy is a universal property of matter, a great search-light was turned on the dark places of science, revealing in beautiful simplicity what before was hidden and mysterious; electricity especially received the benefits of this illumination. This principle, formerly recognized only in its most prominent and active forms, as in the living animal, the growing plant, the operating machine, the glowing fire, the shining lamp, was found to exist also in bodies apparently destitute of it, as the stone and brick and log and block of ice or any other body; energy, in fact, being inseparable from matter and matter from energy." — *Atkinson*.

"A second fact of equal importance is that energy, like matter, can neither be created nor destroyed. As it is impossible to create a single grain of sand out of nothing or to reduce it to nothing, so it is equally impossible either to create or reduce to nothing a single particle of energy. But energy, like other matter, can be changed from one form to another or from one place to another." — *Atkinson*.

“When the hand is placed on a hot body that peculiar sensation which we feel and call heat is, according to this theory, simply the motion of the molecules; and, in like manner, when the hand is placed on a body through which a very strong current of electricity is flowing the peculiar sensation, different from that of heat, which is felt is molecular motion in another form; both produced by contact with the body through which the sufficiently powerful electric current is flowing, and by contact with the red hot iron, a burn being the result in each case, though the electrified body may be barely warm.” — *Atkinson*.

“These spaces, and the similar spaces in all other matter in the world and universe, whether it be solid, liquid, or gaseous, are believed to be filled with a fluid called ether, which is so thin that it is impossible to perceive it, and which extends into the vast regions of space, where it is supposed that even the thinnest air does not exist.” — *Atkinson*.

“Electricity is neither energy nor matter, but like heat, light, and sound it is an effect produced by energy on matter. But as the effect cannot be separated from its cause it is proper, and often convenient, to speak of it as electric energy, in the same sense as we speak of mechanical energy.” — *Atkinson*.

“It is not known why one substance permits the transmission of electricity and another resists it; but this is equally true of the transmission of heat and light, and may be ascribed in each case to some peculiar arrangement of the molecules.” — *Atkinson*.

“About the year 1750 Otto von Guericke, a German scientist, conceived the idea of generating electricity by

the friction of the hands and a rotating globe of silver; and this was the first electrical machine." — *Atkinson*.

"He (Edison) was soon deeply immersed in experimenting, despite the fact that our rooms in Harrison avenue were a mile distant from the place in Hanover street where we took our meals. He bought one day the whole of Faraday's works on electricity, brought them home at three o'clock in the morning and read assiduously until I arose, when we made for Hanover street to secure breakfast. Tom's brain was on fire with what he had read, and he suddenly remarked to me, 'Adams, I've got so much to do, and life's so short, that I'm going to hustle,' and with that he started on a dead run for his breakfast." — *Adams*.

"I had read in a scientific paper the method of making nitro-glycerine, and was so fired by the wonderful properties it was said to possess that I determined to make some of the compound. Charles Williams, Jr., and I tested what we considered a very small quantity, but this produced such terrific and unexpected results that we became alarmed, the fact dawning upon us that we had a very large white elephant on our hands. At 6 A.M. I put the explosive in a sarsaparilla bottle, wrapped it in paper, and gently let it down into a sewer." — *Edison*.

"Among the more prominent forms are the duplex and the quadruplex, by which two and four messages are susceptible of simultaneous transmission over a single wire. The latter, which is universally held to be Edison's crowning product in telegraphy, has effected in America alone the enormous saving of fifteen millions of dollars, by the use of this single wire for the two and four wires hitherto employed." — *Dickson's "Life of Edison."*

“Nor does Mr. Edison propose to rest upon these results. He has been and is still engaged in experiments which bid fair to extend the quadruplex system into the sextuplex and even the octuplex, admitting of the passage of six and eight messages over the one wire. This is tantamount to the facilities afforded by 70,000 miles of wire, in addition to those already in use by the Western Union Telegraph Company.” — *Dickson's “Life of Edison.”*

“I had made up my mind that about \$5,000 would be about right for my stock-printer and private printing telegraphic appliance, although other people were paid exorbitant prices for very inferior inventions; but rather than not sell the invention I would take anything, no matter what, as I needed money sorely for my further experiments. With these dazzling expectations I received the committee from the Gold and Stock Telegraph Company. ‘Well, Mr. Edison,’ said one of the members, ‘how much do you want for your devices?’ ‘I don’t know what they are worth,’ was my reply; ‘make me an offer.’ ‘Well,’ continued the speaker, ‘how would \$40,000 strike you?’ I believe I could have been knocked down by the traditional feather, so astonished was I at the sum.” — *Edison.*

“In my first laboratory at Newark, N.J., I kept only pay-roll accounts and no other kind; preserved the bills and generally gave notes in payment. The first intimation that the note was due was the protest, after which I had to hustle around and raise the money. This saved the humbuggery of bookkeeping and possessed the advantage of being cheaper, as the protest fees were only \$1.50. Notwithstanding this extraordinary method of doing business, every one was willing to accept the notes, and my credit was excellent the time I occupied Ward-street factory.” — *Edison.*

“The hours of work were as erratic as the finances, and must have resulted in utter anarchy and confusion but for the prevailing spirit of coöperation which existed. The same enthusiasm which had stood Edison in such excellent stead during the years of his servitude acted like a charm on his subordinates now. The master-mind was discernible in the most insignificant details; the master-hand was at the disposal of the humblest mechanic. By example, by precept, by judicious incentives, by general companionship, Edison kept the public interest sustained and received the willing coöperation of his employees. ‘We had no fixed hours, but the men, so far from objecting to the irregularity, often begged to be allowed to return and complete certain experiments on which they knew that my heart was especially set.’” — *Dickson’s “Life of Edison.”*

“I had a number of schemes fermenting in my brain, foremost among which was the quadruplex telegraph. This problem was of the most difficult and complicated kind, and I bent all my energies to its solution. It required a peculiar effort of the brain, such as the imagining of eight different things moving simultaneously on a mental plane, without any external mechanism to demonstrate its efficiency.” — *Edison.*

“While engaged upon these complex things Edison was notified, with legal abruptness, that unless he paid his taxes the next day, the last of the term of grace, he would be compelled to pay twelve and a half per cent. extra. In compliance with this stern demand he repaired to the city hall and took his place at the end of a line with about a hundred ahead of him. During the tedious delay which followed, while waiting his turn, Edison had been working on that problem of the quadruplex telegraph, and had become totally unconscious of the matter

which brought him to the tax office. The last moments of grace were almost at an end when Edison found himself in front of the implacable Rhadamanthus in charge, who roughly said, 'Now, then, young man, look sharp; what is your name?' 'I had lost my composure completely,' remarks Mr. Edison, 'and all recollection of my name as well, for I stared at the official behind the counter and answered in perplexity, "I don't know." Jumping to the conclusion, I suppose, that he had an idiot to deal with, the tax collector waved me aside, others poured into my place, the fatal hour struck, and I found myself saddled with the extra charge of twelve and a half per cent.' — *Dickson's "Life of Edison."*

"The consolidation became imminent. Edison's agent telegraphed that they would have to resort to that expedient, which, as they offered only one-third to the inventor, did not meet with that gentleman's approval. 'I replied by telegraph,' says Mr. Edison, 'to hold back negotiations for three weeks so as to give me time to invent a receiver independent of Bell. I then withdrew my whole force from the electric light, which I was then investigating, and put it on telephony.' The practical outcome of this concentrated energy was the completion in one week of a satisfactory telephone, based on a new discovery, and in sixteen days twenty instruments were constructed and on their way to England, under charge of two picked experts. The substitution of the new methods for the old took place in the newly established exchange in London, the consolidation was effected, and Edison's stipulated terms of equal division were acceded to." — *Dickson's "Life of Edison."*

"On one occasion, having received an order to supply \$30,000 worth of his gold and stock quotation printer, and finding that for some reason the new instruments re-

fused to work, Edison immured himself on the top floor of the factory together with a handful of scientific devotees, and conveyed to his followers the pleasing information that there he proposed to have them remain until such time as the printer was in smooth working order. 'Now, you fellows,' said the determined inventor, 'I have locked the door and you will have to stay here until the job is completed.' And they did so. Sixty hours of physical and mental work ensued, unbroken by sleep and scarcely by food, at the end of which time the difficulty was discovered and rectified." — *Dickson's "Life of Edison."*

"Variety is the secret of wise eating. The nations that eat the most kinds of food are the greatest nations. Rice-eating nations never progress. They never think or act anything but rice, rice, rice, forever. Look at the potato and black-bread eaters of Ireland; though naturally bright, the Irish in Ireland are enervated by the uniformity of their diet. Look at the semi-savages who inhabit the Black Forest. Some say that I get the cart before the horse, and that the diversified food is the result of the high civilization rather than its cause, but I think I am right about it. A nation begins to decay, philosophically and morally, as soon as cooking is degraded from an art to an occupation." — *Edison.*

"I discovered the principle of the phonograph by the merest accident. I was singing to the mouthpiece of the telephone, when the vibrations of the voice sent the fine steel point into my finger. That set me to thinking. If I could record the actions of the point and send the point over the same surface afterward I saw no reason why the thing should not talk. I tried the experiment first on a strip of telegraph paper, and found that the point made an alphabet. I shouted 'Hello,' 'Hello,' into the mouthpiece, rammed the paper back over the steel



point and heard a faint 'Hello,' 'Hello,' in return. I determined to make a machine that would work accordingly, and gave my assistants instructions, telling them what I had discovered. They laughed at me. That is the whole story. The phonograph was the result of the prick of a finger." — *Edison*.

"From this palace of enjoyment we issued into the store-room, which holds the most unique and comprehensive paraphernalia in the world. Here are specimens of every material which may possibly be needed in connection with Mr. Edison's experiments, and as the inventor's ideas are generally 'sparks that flash red-illumed from the anvil of the brain,' brooking no delay in the process of incarnation, and as, moreover, there are no assignable limits to the scope and direction of his erratic genius, the utmost skill and research have been employed in bringing together this material basis for his investigations. Mr. Edison has challenged the skeptical to name one substance, organic or unorganic, which is not found in this unique collection. Every department of nature has yielded its tribute to the potent wizard, not merely the superficial products familiar to every day use, but those arcana which the ocean and nether world hold in their inmost depths. Shining metals, lucent crystals, variegated minerals, lie scattered in profusion. Dainty shells and coral repose among mosses and sea-weed. Fragrant gums and spices recall memories of the fair Babe of Bethlehem. Chalks, resins, salts, and chemicals are heaped about in lavish plenitude, notwithstanding the fact that some of the latter represent a value of \$300 an ounce." — *Dickson's "Life of Edison."*

"It is a most remarkable instance of the slow development of electric science in former times that thunder and lightning were not recognized as electric phenomena

until after their identity as such, and the means of proving it was suggested by Franklin, and subsequently verified by himself and others." — *Atkinson*.

"The first attempt at transmitting speech through the agency of electricity was made by Philipp Ries, the professor of natural philosophy in Friedrichsdorf, in 1861. His instrument was a crude one, but the principle was correct. Ries was very poor, very modest, without influential friends, and of a delicate constitution, and consequently his invention fell through for the time being. Ries' first receiver consisted of a helix enclosing an iron rod, and fixed upon a hollow sounding-box. Iron rods, when magnetized by the closing of an electric current, are slightly increased in length, and when demagnetized by the breaking of the current, are restored to their first length. These differences of length in the rod succeed one another in exact accordance with the closing or breaking of the current connection by the vibrations of the sound at the sending-station, and are communicated by the rod to the sounding-box, and thereby rendered audible at the receiving-station. The electro-magnet used by Ries was a knitting-needle, wound with silk, covered with copper wire, and his sounding-box was a cigar box." — *Brennan*.

## RETAIL TRADE.

“The lot assigned to every man is suited to him, and suits him to itself.”

*Marcus Aurelius.*

Success in retail trade depends less upon a man's surroundings than upon the man himself. Where ten men have failed with a shop or a store, the eleventh sometimes steps in and makes money. On one of the West India islands by far the richest man is a Portuguese who arrived there many years ago in the most absolute poverty. So at least it seemed at the time, for no one gave him credit for the capital of brains he possessed. He was a day laborer, and found work on a plantation four or five miles out of the capital town. Every day numbers of people, colored people and foreign laborers, passed the plantation on foot, on their way to the town to buy provisions, and in their poverty they lived largely upon meal. That man now owns a large part of the town, owns the plantation that he first worked upon, and several other valuable estates. He opened his safe one day and took out twenty thousand dollars in gold to save his first employer from bankruptcy.

How did he accomplish this? In the first place he saved his money. When his companions went into the town to spend their little earnings, he was not with them. As he walked in the fields he kept his eyes open. At the end of a year he had saved enough money to buy a barrel of meal and a few boards. He saw his opportunity and made the most of it. His employer gave him permission to build a little shed on his land close to the

road, and in the shed he opened his barrel of meal. Those passing people, he knew, would not walk five miles further to the town for their meal when they could buy it as well from him. The barrel measured out at retail produced enough money to buy two barrels. Gradually he added other goods — salt pork, salt fish, kerosene oil. The shed soon grew into a shop, the shop into a store. His customers had only a few pennies to spend, but he gathered in their pennies. In a few years he had a store in the town; then a big warehouse. Though he was growing rich, he was still able to sit down on a box at noon and dine royally on a slice of bread and a raw onion. He bought nothing that he had not the money to pay for.

It was not the accident of those people passing in the road that made this man's fortune: it was the sense to see the opportunity, the industry to earn money for a start, the frugality to save it, the skill to invest it to the best advantage. Now, see how much better off he was to begin with nothing and earn his own capital than he would have been if he could have borrowed enough money for a start. Every cent he had he had earned with his own toil. He knew that every big English penny represented at least an hour's work. In a whole day he could not earn an English shilling, for labor is very cheap on that island. Even a penny was not to be invested carelessly. Having earned the money, he knew its value. A borrowed dollar never looks half as large as the dollar that we have earned.

The best capital upon which to start any small retail business is money that you have earned by working at the business which you intend to go into. Necessarily there are exceptions to this rule, but it is a safe rule to follow in ninety-nine cases out of a hundred. Do you

wish to open a grocery? Will \$500 be sufficient to give you a start? Then go to work in a grocery and earn and save the money; it will be worth more to you than any thousand dollars that you could borrow. Your knowledge of the business will be worth more than your cash capital. The habit you will have acquired of saving your money will be worth as much as the money itself. What you earn you know the value of. The ten dollars that you saved out of a month's wages you will not be likely to invest in some useless ornament for the store because other grocers have them. You will know how to make every dollar count.

The man who engages in a business that he does not understand is always at a serious disadvantage, and it is a costly mistake to think that anybody must have natural sense enough to conduct a little shop. It is a simple matter to buy tea, and sugar, and soap, and sell them again; but to buy just the right kind of tea, in the proper quantity and for the right price, with a knowledge of the demands of your trade, is a fine art. If you do not know how to do this you must have a clerk who does know; and it is always dangerous for a clerk to know more about a business than his employer. Such a clerk often becomes the proprietor himself.

In almost every community some branch of retail trade can be made profitable if undertaken by the right man. But you do not know yet whether you are the right man or not, and you should proceed with great caution. There are two ways in which you can find out whether or not you are fitted for the business you contemplate entering, one of which is dangerous and may be expensive, the other sure and safe. The first is to "take a fancy" for some branch of business, to "see no reason why it should not pay," and to borrow the money

from your parents or friends to give you a start. Suppose that you are able to borrow a thousand dollars. With that much in hand you can probably obtain credit for another thousand, and two thousand dollars will enable you to open a very respectable establishment. You will not have to begin on a small scale and work your way up. You can have plate-glass windows and handsome showcases, and "carry a large line of goods," as you will soon learn to say. For your ignorance of the business you can partly compensate by engaging an experienced clerk. It looks much more attractive than beginning with a small shop on money that you have earned yourself. There is a great deal of that kind of business done in this country. Even for an experienced business man it is always highly dangerous ; for a young man just starting out it is simply suicidal. With your lack of experience the chances are greatly against you. Then, if you fail, where will you stand ? Do you know what it means for a young man to be two thousand dollars in debt ? or one thousand, or one hundred ? It is a mill-stone around the neck dragging you down. Being an honest man, you will intend that the money shall be paid, and for years you will be working for your creditors when you should be working for yourself. I cannot advise you too strongly against running into debt for your start in business.

The other way looks harder at the start, but it is much easier and better in the end. It is to determine what branch of trade you wish to follow, find employment in a business house of that kind, and while you are learning the business to save your money to pay for your own start. Then to begin on a small scale and increase your business step by step. Even if you are so situated that you can without difficulty lay your hand at once upon

the necessary money it is much better to begin in this way. Borrowed money slips through the fingers like water; what you have earned yourself you will be more likely to take care of. If it is no more than a newsstand that is your ambition you must know the business, or your rival who does know it will outdo you at every point. A little shop that grows into a large one is much better than one that begins with a flourish and falls into the hands of the sheriff.

While you are learning the business you will make friends. Every good clerk makes friends, and friends are customers. There will soon be a certain set of customers who will go to you rather than to any other clerk in the place. The more of such a following of customers a clerk has, the more valuable he becomes. You make such friends by treating customers politely, and treating them honestly. Unvarying politeness to every customer is one of the first requisites — to the barefoot boy buying a stick of candy as well as to the lady who comes in her carriage. The boy will be bigger some day, and will have more money to spend. But be sure that your politeness is of the real kind, not assumed for the occasion. The clerk who is so effusive with customers that each one seems to be a long-lost brother just found becomes very objectionable. Customers are not fools; they see through a thin veneering of politeness very quickly, and they do not care for exhibitions of affection. To be waited upon promptly and in an obliging way, and to feel sure that they will be dealt with honestly, is what they want. You cannot be too careful about the most absolute honesty even in the smallest matters. When your customers begin to say of you, "I know it is all wool; I bought it of Charley Smith, and he would not deceive me," then you are on the right track. Seizing



upon the extra half cent every time is poor policy. The tradesman's half of a quarter-dollar is thirteen cents, but that half cent often costs more than it comes to.

The clerkship, the successful clerkship, may be of more importance to you than you imagine. It is one of the open doors for entering business for yourself. In a few years, if you are such a clerk as you should be, you will have a considerable clientage. There will be many customers who will prefer always to trade with you; and your employer cannot help knowing it. You will have been saving your money, and will have a little capital ready. Then when you begin to talk of opening an establishment of your own your employer will offer you inducements to stay. If you are really a valuable man it is not at all improbable that he may offer to sell you a share of the business — not because he could not replace you, but because he will know that you are popular with his customers and that a certain proportion of them would follow you. And this, if such an opportunity comes, is one of the best and safest ways of entering business. You know the store and its customers, and understand the business; you know whether it is making money or losing; you know about what the chances are of extending the business. You could not know as much about any business house that you had not been employed in.

By working your way thus into a business from a clerkship you run much less risk of losses by giving credit, because you know the customers. I should like to advise you neither to give nor receive credit, but experience teaches me that such advice would be useless. However strong your intention may be to do a strictly cash business, it is almost inevitable that you should be drawn into both giving and receiving more or less credit;

selling for cash only is correct in theory, but in practice it is nearly always impossible. You cannot afford to offend a good customer by refusing to give him a few days' credit, and too often the few days run into a few months, the bill of ten dollars into a bill of a hundred dollars. But in any situation, and particularly in small places, you can reduce your losses to a minimum by knowing your customers. There are always some who may safely be trusted, and others whom it is not safe to trust. In a strange place you can learn your customers only by experience, and such knowledge comes high. Several years ago a stranger opened a grocery in a small town that I am familiar with, a place where it is necessary to give credit, and in one year lost four thousand dollars by bills that he could not collect. He did not know the people. He sold out to a resident of the place who understood the business, and who continued to do a credit business. The purchaser told me a few days ago that in two years he had not lost one cent by bad bills. He knew the people well ; knew who were sure to pay promptly, who would pay after some delay, and who could be made to pay. If you give credit at all, be sure to know to whom you are giving it.

Do not imagine yourself a prosperous merchant with a comfortable income when you are just beginning. It is not safe to spend money on the strength of prospective profits. The place that I have just mentioned, a town of about three thousand inhabitants in the State of New York, supplies me with two instances of mercantile folly. A father opened a grocery for his son, a young man of about twenty-one, who had a very slight knowledge of the business. Having a good location and good stock, he began with a fair trade, and there was every prospect of his making money. But on the

strength of that he immediately began to think himself a successful merchant. He drove good horses and bought a little yacht and took parties of friends on sailing-trips for weeks at a time. The store was left in charge of boys, and the business naturally dwindled away. The expected profits did not come. Instead of being a successful merchant, the young man is now a clerk in a neighboring city at a very small salary. He had his chance, but threw it away. Another young man, who knew nothing whatever about the business, "took a fancy" for the only drug store in the place, and his parents bought it for him for four or five thousand dollars. There was an excellent clerk in the store who had been saving his money, capable, and popular with the customers. This clerk immediately saw his opportunity. He demanded an increase in salary, and on this being refused he opened a drug store of his own, and most of the customers followed him. It must always be expected that a clerk who knows more about the business than his employer will use his superior knowledge for his own advantage, as far as he can honorably do so.

So many retail tradesmen in small places waste their money by injudicious advertising that I shall add a few words on that subject. There is no doubt in my mind of the value of newspaper advertising to the retailer, when it is properly done; but there are ways of doing it in which it is of no benefit whatever. It is no uncommon thing to see a village merchant, who has contracted with the village newspaper for a column of space throughout the year, filling his column with an announcement in large type of "a full line of staple and fancy dry goods, trimmings and millinery, boots and shoes, hats and caps always in stock at John Smith & Co.'s. Prices as low as the lowest." Frequently this

advertisement appears in the same type, in the same position in the newspaper, through the whole year. It is always an example of money injudiciously expended in advertising. So far as it reminds the public of the existence of John Smith & Co.'s store it is of value, and no farther. That reminder could be given as well in twenty lines, at a twentieth of the cost. The public soon learn that a merchant who has not sufficient enterprise to change his advertisements occasionally is sure to be behind the times with his stock. The old excuse for it is that "we haven't time to be writing advertisements." Then why spend money for the newspaper space? The writing of a fresh and interesting advertisement is as important to a merchant as the writing of an urgent business letter.

An advertisement should always contain information of interest to the reader. "A full line of boots and shoes at low prices" means nothing whatever, except that it concerns a shoe store. People wish to know what kinds of boots and shoes you have, and what you mean by low prices. If you tell them that you have fifty pairs of Congress gaiters, of fine kid, hand sewed, for \$2.75 a pair, every man who is in need of shoes is immediately interested. Tell what you have, describe various articles in detail, give the prices, and be sure to have those goods for sale at those prices. The more particulars you give, the better. Mention your goods, not by meaningless generalities, but in detail. The most effective advertisements I know of, perfectly plain and to the point, without any of the confidential trash or catchy remarks at present in vogue in advertising, are those published by the merchants of some of the West India islands. Upon the arrival of the weekly steamer they immediately make their announcements

in this form: "John Smith & Co., 24 West Bay street, have just received by the steamship 'Santiago' 50 cases solid meat tinned tomatoes, 6d. a tin; 40 barrels XXXX Hecker flour, 22 shillings a barrel," and so on through their whole list of arrivals, giving one line to each article, and filling often a newspaper column or more. The advertisement is a complete inventory of their new goods, giving the price in every case. The housekeeper finds these suggestions valuable in ordering provisions, and every reader finds something named that he is or may be in need of. You cannot give too many details in an advertisement; you cannot change your advertisement too often; but be careful that what you say in the newspaper is as absolutely truthful as what you say behind the counter.

"While you live, tell truth and shame the devil." — *Shakespeare*.

## THE TRADESMAN'S NEEDS AND OPPORTUNITIES.

“CHOOSE a business first that you are acquainted with the details of; second, for which you have sufficient capital; third, for which you have a taste and liking; fourth, which gives promise of making something more than simply a living.” — *“How to Keep a Store,” by Samuel H. Terry.*

“It is a prevalent idea among men who are not very prosperous in their occupation that any other business is better than the one in which they are engaged. Those who are ever ready to act on this idea, and make frequent changes, generally remain poor through life.” — *Terry.*

“Wealth is rarely accumulated in any other way than by persistent and continuous efforts in one direction; and then it may seem long to the anxious expectant before the reward comes. Spasmodic efforts to expedite it often do more to retard than to hasten it, by betraying the attention from the sober and practical routine of details, an essential of success, and causing them to seem dull and plodding.” — *Terry.*

“No prudent man would embark in a business expecting success if unfamiliar with the details, or with insufficient capital; and though he may have sufficient knowledge and capital, if the business is one that is distasteful to him in many of its details, or with all his skill and capital he can only succeed in making a living, he will soon become lukewarm and irresolute in conduct-

ing it, and thus make it less profitable. It is therefore also indispensable to success that a man should like his business and that it should be the one best suited to his peculiar gifts and qualifications." — *Terry*.

"The acquaintance required for the business should not be merely a superficial knowledge of the articles dealt in, but should descend to minute details of the various qualities, the advantages and disadvantages resulting practically in the use of different qualities, the cause of increase and decrease of supply, the periods of greater and less demand, and also the fashion or prevailing taste, which in many things governs or influences the public in the purchase of many articles." — *Terry*.

"No fact is more apparent than a general diminution of health and bodily vigor among our merchants, clerks, and book-keepers. This is owing partly perhaps to an improper mode of living, such as hastily eating dinner and immediately devoting the entire mind and nervous energy to the prosecution of business; long-continued mental effort without proper food; deprivation of the proper amount of sleep; the habit of smoking, etc.; but we apprehend that much of the difficulty may be traced to the want of proper exercise." — *Nelson Sizer*.

"Every man should do something to advance the common wealth and happiness of the human race. He should not engage in anything which has a direct tendency to debase the morals, imperil the health, or lower the race in the scale of being." — *Sizer*.

"Among the most detrimental pursuits is the manufacture and sale of alcoholic drinks. If that traffic could cease there would perhaps be much unhappiness for a while among those accustomed to use stimulants;



but in five years' time, as a blessed consequence of the abstinence from intoxicating drinks, mankind as a whole would be augmented in power and the amount of solid happiness increased at least twenty per cent." — *Sizer*.

"The manufacture and sale of tobacco is an unmitigated curse to the world. We always advise young men to steer clear, not only from the use of these articles, but to avoid engaging in their manufacture and sale. Young men cannot afford to use tobacco, and, as we conceive, young men with the right information and proper judgment in the matter cannot afford to make money by administering to so bad a habit." — *Sizer*.

"Example is infectious. Purity is contagious. And thus every true man may make his own personal influence a centre of health-giving virtue; and together, if in earnest to purify trade, good men must combine their action into many-plated batteries of moral force, at once to fortify others and to reconstitute the conditions which now spontaneously develop fruit." — *R. Heber Newton*.

"It is especially important in every effort to economize that you shall keep your own personal expenses within proper limits. Even those of us who imagine that we spend nearly nothing on ourselves do in reality waste a good deal of money that might be saved with little effort and no actual inconvenience. The waste is in small sums, insignificant in themselves, but amounting in the aggregate to a good deal. A large share of the money thus expended is used in supplying artificial and imaginary wants — wants created by the artificiality of our lives or by the constant sight of articles which, if we saw not, we should never think of wanting. The very fact that the vendors of these things, from the great merchants to the keepers of peanut stands, find it profit-

able to display their wares to the public gaze at considerable cost to themselves, is proof enough of the unreality of the wants they supply; and if further evidence be wanted, one has only to keep account of the things he buys in town which he could not get at all if he lived in the country." — *George Cary Eggleston.*

"If you are conscious that you are not thoroughly honest do not think of engaging in any mercantile pursuit. If you cannot handle money without feeling an inclination to appropriate some of it select some trade where you will not be exposed to temptation." — *Edwin T. Freedley.*

"No young man ought to look forward to a life of business if he is conscious that it is hard for him to be honest in the smallest matters. If he would defraud his sisters or brothers, if he would take more than his share in a division, if he ever conceals what falls in his way without actually stealing it at the time, he ought never to go into business. When property is passing through your hands continually, when it is so easy to overcharge here and there, to clip a little here and there, to use what is in your hands with the intention of repaying it, you ought to be very careful to be honest to a mill." — *Rev. J. W. Alexander.*

"The better a man is acquainted with the details of the business in which he is engaged, the greater is his chance for success. In truth, the man who is ignorant at least has no right to expect success. Ignorance may take the risk and occasionally win, but it is not once in ten times." — *Terry.*

"It will be that much time well expended by any young man ignorant of the business he proposes to embark in

to go to some well-established dealer, residing far enough from the locality of the contemplated business to avoid any display of jealousy, and make arrangements to be instructed by him in the details of the business, even by the payment of money to him, if required." — *Terry*.

"If there should be a total deficiency of experience in buying and selling, and a person having sufficient capital, he might select, to advantage, a partner having the required knowledge without capital, and each of the two would thus supplement the other's deficiency to their mutual advantage. When neither of these substitutes can be obtained the only prudent plan is for the person to spend sufficient time as a clerk with some one in a similar business to learn the details, before embarking in it himself." — *Terry*.

"Every business requires a certain amount of stock to be kept on hand. This must either be paid for in cash — requiring that amount of capital— or must be bought on credit and for which the dealer will be indebted. Commonly it is partly paid for in cash and partly owed for, but as the fact of owing for it implies the necessity of obtaining credit for the amount, and as a man's credit will depend very much on his capital, it follows that the amount of his cash must be considered even when he buys partly or wholly on credit. Those who trust him will at least consider it, if the dealer does not, and will require that it shall be, in their opinion, adequate to the business." — *Terry*.

"Absolute losses in business are generally the result of ignorance. Every reader of this who has been in business will concur in the assertion that fully nine-tenths of the losses which he met with therein arose from the ignorance of something he could previously have known." — *Terry*.

“When part of the sales are made on credit, they must be omitted in calculating the amount of capital while they are outstanding. Suppose that one-half of sales of \$20,000 a year are made on four months’ credit, this would leave \$3,333 always outstanding after the first four months of the business, and would require that addition to the capital, or additional credit to be obtained and at the same length of time.” — *Terry*.

“It must in practice not be forgotten that a large margin has to be allowed in calculations on the payment of goods sold on credit in the retail trade. A prudent man would not want to rely on more than three-fourths of the amount trusted out being paid for promptly or on a specified day, and at some periods of the year or in some localities perhaps not so much. The reader will therefore observe that a cash business requires much less capital than a credit one, and though the profits may be smaller, such a business is less liable to loss in times of pecuniary disaster, and requires less ability to conduct it properly.” — *Terry*.

“On the whole it may be said that ordinarily a retailer, starting a business under favorable prospects as to success and with a good reputation for honesty and ability, would be able to purchase on credit an amount equal to his capital, so that if he has \$5,000 in cash to purchase with he could expect to obtain readily an additional \$5,000 worth of goods on credit, which would be ordinarily given in the trade. Such a proportion is usually regarded as a very safe and prudent one.” — *Terry*.

“The dependence on the favor of ordinary creditors or on bank accommodations for means permanently required in business is foolish. Not one time in ten can it fail of ruin to those who try it.” — *Terry*.

“As regards the great majority of occupations which are considered honest, a person may take pleasure in almost any one of them if he only decides that he will do so, and other things being satisfactory, a man, and especially a young man, is not justified in declining to embark in or undertake to learn a business which his older and more experienced friends deem suitable, from any frivolous idea that it is incompatible with his notions of gentility and manhood. I make only one exception to this: if the young man thinks the business injurious to the community or aiding dishonesty, as dealing in ardent spirits, tobacco, etc., his conscientious scruples should not be overruled.” — *Terry*.

“It is not the business that elevates the man. A noble, high-minded, honorable man may elevate the business, however humble it may be. Indeed, we see this every few years. Some occupation generally conducted by low, worthless fellows, which we are wont to associate with such characters and consider contemptible, is taken in hand by a man of character, who infuses energy, ability, capital, honesty, and good sense into his management, and in a few years the whole reputation of the calling is changed and it is recognized as worthy of the aspirations of the refined and intelligent.” — *Terry*.

“Nor should a young man rashly embark in a business simply because he fancies it an agreeable one. We are more apt to see the pleasant side of a business when we look at it simply from the outside. The disagreeable work has to be done in a back room. It is the poet Burns, I think, who tells us that in early life he had a confirmed intention of becoming a tailor. The sheltered, indoor occupation of the men of that craft, as he thought, by comparison with his outdoor exposure, seemed the very acme of a happy life. No doubt many young men

select their life's occupation from as narrow a view of it as Burns took." — *Terry*.

"The grocer requires a good development of the vital and motive temperaments, so that he will be able to work hard and to work quickly. He should have relatively more body than brain, so that he will not need so much sleep as do those large-headed, bookish men, for grocers keep long hours, — unwisely, we think. Grocers must start early and be driving and enterprising. They must be able to talk quickly, decide quickly, and do up parcels quickly, for when they have a dozen customers waiting they must work rapidly. People who buy groceries frequently leave their politeness at home. A grocer should not care much what people say in the way of criticism. He should be good natured, happy, cheerful, free, and easy, and at the same time gentlemanly. He should not answer back or he will not be likely to succeed." — *Sizer*.

"Grocers are very likely to be dyspeptics, partly from irregular meals, but chiefly because of their liability to be nibbling all day. When weighing up raisins, cloves, and other spices, tea, dried fruit, crackers, etc., they take a little of each, and thus keep the stomach in a feverish and unnatural condition until it breaks down." — *Sizer*.

"Of late years there has been a great rush of young men towards merchandising, a fact arising partly from the supposition that it is easier than farming or mechanism; partly perhaps from another supposition that it carries with it greater respectability or that it affords a surer or shorter way to wealth than any other calling. Some succeed — many fail. Those who are adapted to it succeed, and thousands of honest, well meaning, indus-

trious young men, after a vain struggle for years as salesmen, drift away into whatever business may offer itself, and thus life becomes to them practically a failure." — *Sizer*.

"Much of the pleasure derived from any business is found in the profitableness of it, and therefore when the best-loved business ceases to be profitable, with most men it ceases to be pleasant. Should any of my readers find themselves in this position, becoming weaned from their former attachment to the business, and on the look-out for something more agreeable, it may well be worth their inquiry as to whether the waning love is not the consequence of the loss of its former profitable character, and if found to be so to make extraordinary efforts to restore the business to its former profitableness, and thereby regain their love for it, rather than quit it for a new occupation for which they may lack the knowledge to conduct it properly." — *Sizer*.



## ENGINEERING.

"Men, my brothers, men the workers, ever reaping something new."

*Tennyson.*

"The bed rock of the wonderful achievement of our civilization is mechanics."— *Spencer.*

To appreciate the importance of the engineer, try to imagine what the world would be without him. Try to see what America would be without him. Go back to the condition of the Indians? We should go farther back than that. It took some knowledge of engineering to construct the Indian's wigwam; to shape his bow properly and make straight his arrow. Whether civil or mechanical, the engineer is a necessity; and this country in which we live is his greatest field. When there are as many railroads, with their bridges and tunnels and stations, as many paved wagon roads, as many fine public and private buildings, as many telegraph and telephone offices, in Arizona and North Dakota, in every part of the great West, as there now are in New York and Massachusetts, this country may be said to be fully developed; but not sooner.

Civil or mechanical? If you have a bent for engineering, you must decide that question. And no matter which branch you select, you will find scores of sub-branches from among which to select a special field. It is important for an engineer to be an expert in some special branch. In medicine the specialist on the eye knows more about the eye than the general practitioner; so in engineering, the specialist in any one branch has a better knowledge of his subject than the man who has



WASHINGTON A. ROEBLING.

Washington A. Roebling, a distinguished civil engineer, is chiefly known to fame as the builder of the New York and Brooklyn bridge. After assisting his father in the construction of the Alleghany suspension bridge, he enlisted in the army in 1861, where he was first an engineer, and then in the balloon service. At the close of the war he was a colonel, and in 1869 he began the construction of the Brooklyn bridge, which was finished in 1883.



no specialty. While you learn the principles of the whole science, go so thoroughly into some one branch that you know it as you know your alphabet.

Let us look at mechanical engineering first. It is possible to go to work in a machine shop and learn enough of the mechanism of engines to become after a time something of a mechanical engineer, without any other preparation. But that is not high enough aim for a young American of brains. The work in the machine shop is only part of the training. To become a thorough mechanical engineer you must have a good knowledge of mathematics; not only of arithmetic and algebra, but of logarithms, geometry, mensuration, and trigonometry; that is a good beginning. Then you go on to geometrical and mechanical drawing, and sketching of machine details; to pneumatics, heat and its applications, and the elements of chemistry. When you have laid that foundation you make a study of the property and strength of materials; of mechanisms and machinery of transmission; of machine design; of steam boilers and their design; steam engines and their design; link and valve motion design; gas and oil engines; of the principles and measurements of electricity; and of dynamos and motors and their management.

That is about the course of study in the best schools of mechanical engineering. But remember that you may understand all those things and still not be a mechanical engineer. You must have practical experience. It has always been an open question with experienced engineers whether a young man should learn the principles first or the practice; that is, whether he should go to the shop first and the school afterward or to the school first and the shop afterward. There are objections to both plans. After working some years in a shop it is hard work to

go back to school. After years in school a young man sometimes feels that he has too much knowledge to go to work in a shop. To do both things at once, to get the technical knowledge while acquiring the practical experience in a shop, is generally conceded to be the best plan.

Any young man of industry and determination can accomplish this. In many of the large cities are schools in which all branches of engineering are taught, and most of these schools have night classes. By finding employment in a machine shop in a place where there is such a school the theoretical and practical parts of the business can both be learned at the same time. You will hardly have to ask yourself whether you have a taste for such work. If you have it, it is almost sure to have shown itself. Scarcely any inclination on the part of a young man shows itself more plainly than the early desire to work with tools, and the knack of using them.

Greatness comes slowly to a mechanical engineer. He must be a trustworthy man, and understand his business. He has valuable machinery under his control, and often has many human lives intrusted to him. A partial knowledge of his work is not enough. One of the most responsible positions that he can well reach is running the engine of a fast express train — such a train, for instance, as the Empire State Express between New York and Buffalo, making only two or three stops in the five hundred miles. Nothing that I could tell you about the necessary training of an engineer would give you a better idea of how he must work his way up, step by step, than some account of the training of a locomotive engineer. And as few men who write have had any practical experience in railroad engineering, I base my account of this training upon a description given by a man who

after long experience as a locomotive engineer became a writer of distinction — Mr. Cy Warman.

The young man, according to Mr. Warman, who desires to become a locomotive engineer, must bring to bear what influence he can upon the Master Mechanic of some railroad. Letters of introduction will do; and when he gains admission to the office a clerk enters his name in a book. Then he waits until his turn comes, for other names are ahead of his; and in a month, or perhaps two or three months, he is sent for and told to report to the Night Foreman. That officer puts him at work as a wiper. There are half a dozen or more wipers at work in the round-house, and it is their business to take the engines as they come in, after their day's run, crawl down into the pit beneath them with a torch, and wipe all their lower works clean with cotton waste. The hot, dripping oil and the smoke of the torch make this anything but pleasant work, and at first it is all at night, from six to six. There are old men among the wipers, and some delicate young men, and a few strong young men who are in training to become firemen.

After six months of this night-work as a wiper the young man is promoted to the day shift, and so has the pleasure of sleeping at night; and after more months, according to circumstances, he is promoted, if faithful and industrious, to be an engine watchman. The engine watchman's duty is to take a locomotive in the yard where its engineer leaves it, run it into the round-house, keep water in its boilers, and keep up some steam, so that if it should be needed for an emergency it would be ready. As a round-house may contain anywhere from twenty to fifty locomotives, the engine watchman soon acquires some knowledge of the various styles of machines. Indeed, he becomes to some extent acquainted

with every engine on the road, so that when he rises to better things no locomotive is an entire stranger to him.

After a sufficient apprenticeship as engine watchman, and when there is a vacancy, he is made night fireman of a yard engine. His duty now is to fire one of the engines that draw cars and trains from one part of the railroad yard to another, from six at night to six in the morning. And after some night experience he is transferred to the day shift, and once more can sleep at night. When he learns the duties of a fireman on the yard engine, if still found deserving, he is made fireman of an engine on the road, where his duty is not only to keep up steam, but also to keep everything clean above the "running board," the wooden footpath that you will see on every locomotive on each side of the boiler. A fireman's apprenticeship may last anywhere from five to ten years; but in some cases, where particular skill is shown, he may at the end of three years become a hostler. The hostler is a sort of assistant engineer in the railroad yard, doing the less important parts of the work. Then he becomes a night engineer in the yard, and after a time a day engineer in the yard. Then if he is a good man, and has given general satisfaction, after some experience as an engineer in the yard he is made a real engineer on the road and gets a train.

After all this preliminary work, it must be remembered, he is still only a young and untried engineer, and cannot hope for some years for anything better than a freight or coal train. It remains to be seen whether, being in charge of an engine on the road, he will prove to be a careful, trustworthy man — a man who will take no unnecessary risks, and still a man who will bring out of his engine all the speed and power that it is capable of. There are perhaps five hundred engineers on the road,



among whom fifty are sure to be better in all respects than the others. From among these fifty the engineers of the fast passenger trains are selected ; and the cream of the fast passenger engineers are chosen to run such exceptionally fast trains as the Empire State Express.

It is a long, severe training, you will say ; and I am forced to agree with you. But it is a necessary training, which has its advantages. Where such a training is required there is little danger of an occupation being overcrowded. Locomotive engineers receive better pay than almost any other class of mechanics.

But that is only a single branch of engineering, among so many that I cannot even name them here. The civil engineer should have at least some knowledge of the whole business, or he is no more than a surveyor. To be merely a surveyor, he must understand not only the use of his instruments, but all about mapping and geometrical drawing.

The practical side is the side that naturally you desire to look at. What can you do, what can you make, after you have become an engineer, either civil or mechanical ? Engineers of distinction often receive very large sums ; but at present you are more interested in the work of the average engineer. What can he find to do ? Look about your own neighborhood and see ; not that you need to remain in your own neighborhood, but simply as an example of other neighborhoods. Are there any bridges to be built ? They would not think of building a bridge of any importance without the assistance of an engineer, would they ? Are there roads to be made ? The wagon-track between two fences, with the earth scraped up every spring out of the ditches, is no longer considered a good enough road in this country. The modern road is made on scientific principles, and with

the assistance of an engineer. The great ambition of the old-fashioned road-master was to make "a good level road." The engineer comes along and says that no part of a good road should be perfectly level. The making of good wagon roads alone in this country will give employment to an army of engineers for the next century. Are there tunnels to be bored, culverts to be built, sewers to be laid? Are they putting up a tall bell tower for a fire alarm? Two or three workmen come and put it up, but it was an engineer who designed it, or it would be unsafe. You or I could not design such a simple thing, because we do not understand the principles; but you will not study engineering long before they will be as plain to you as the building of a fence. You will find immediately about your own home a score of things that could not have been made or done without the services of a competent engineer.

The need of a good manner, of the ability to express yourself well, is very great in the higher branches of this profession. You must not only be a good engineer, but you must be able to make other people see that you understand your business. Most likely you have heard men talk who convinced you in a moment that they understood their business. But you had no proof of it; it might have been ability to talk rather than skill in work. Able men are often very poor talkers, and they are always at a disadvantage until their excellent work has given them such reputations that they do not need to talk. It has been truthfully said that "success is a social matter; it depends upon a man's influence over men. Knowledge of facts and laws in nature will not achieve it. The most thorough metallurgist or engineer needs to be able to make other men recognize his ability." This does not argue at all that talk is everything; there must be

skill behind the language ; it means only that your skill has a better chance of being tested if by your manner and conversation you can convince others that you have it.

There are about one hundred engineering schools in this country, the Stevens Institute, in Hoboken, Cornell University, and the School of Mines and Engineering in Columbia University being among the more prominent ones. The great engineering societies having headquarters in New York, such as the American Society of Mechanical Engineers, the American Society of Civil Engineers, the American Institute of Mining Engineers, or the American Institute of Electrical Engineers, will upon application give information about any of the engineering schools. The only address necessary is the name of the society, and of the city and State.

The engineer, whether civil or mechanical, must be prepared to travel wherever work offers. It is seldom that he can stay at home. The new American colonies will soon demand a large number of experts ; so will South Africa ; the South American countries and Australia have been giving them work for many years. The locomotive engineer is not long behind the civil engineer in foreign work.

The spread of civilization creates fresh demand for marine engineers. The Spanish War gave the public new ideas of the vast importance of marine engineers. In bringing the *Oregon* grandly around Cape Horn, and in the naval engagement before Santiago, the engineers showed their skill and courage. The marine engineer must know something of electricity also. No matter if the ship is large enough to carry an electrician, the chief engineer is expected to understand every machine on board.

Do not fail to give other engineers credit for some little knowledge of the profession, even after you have received the training of an engineering school. There were engineers a thousand years ago, two thousand years ago, who did as good work with the facilities at command as the modern engineers can do. Many things they did not understand as well as they are now understood — some things they understood better. In the absence of steam they certainly understood the management of large bodies of men; and that is an important matter for an engineer. Before you begin to imagine that all engineering skill is confined to the United States, or to our own time, go over, if you can, and look at the monuments to engineering skill all over the south of Europe. You will find in Rome, and within a radius of fifty miles of it, enough remains of engineering works to keep you studying for six months. You can become a good engineer without visiting Europe; indeed, most American engineers would smile at the idea of going to Europe for instruction. But the engineer can find there as much of value to him as can the architect in studying the lines of the beautiful old buildings. Even in the crude mining methods of ancient Mexico there is much to be learned. The engineering schools can give you only the foundation; the superstructure you must build yourself.

“Everybody likes and respects self-made men. It is a great deal better to be made in that way than not to be made at all.”—*Oliver Wendell Holmes.*

## HOW SHALL THE ENGINEER BE MADE?

“ENGINEERING is the science of employing the physical properties of matter to serve the purposes of mankind. It includes also the useful application of the different forms of energy. Two branches of the science are recognized, the distinction being based on the ends to be served. If applied to advance the interests of mankind in a state of peace, it is called Civil Engineering; if to serve the purposes of war, it is Military Engineering.” — “*How to become an Engineer*,” by Geo. W. Plympton.

“The term ‘Civil Engineering’ is applied to a wide and somewhat indefinite range of subjects, but it may be defined as embracing those applications of mechanics and of the arts of construction generally which belong to lines of transport for goods and passengers, whether roads, railroads, canals, or navigable waters; to works for the conveyance of water, whether for drainage or water supply; to harbors and works for the protection of the coast. All these kinds of works are combinations of structures and machines. They comprise structures in earthwork, as cuttings, embankments, and reservoirs; in masonry, timber, and iron, as bridges, viaducts, aqueducts, locks, basins, piers, and breakwaters; they comprise machines, such as cars and locomotives, lock-gates, sluices, and valves, pumping, steam-engines, and dredging machines. Their principles therefore consist to a great extent of the general principles of construction and machinery, combined and adapted to suit the circumstances of each kind of work.” — *Rankine*.

"Because the profession of a civil engineer involves such a variety of scientific labor, it happens that many engineers devote their time and energies to some of the various departments. Thus the mechanical engineer devotes his time to machines, to their construction, use, and efficiency; also the construction and operation of steam, gas, and air engines." — *Plympton*.

"The thoroughly educated civil engineer is he who has been well grounded in the principles which underlie the practice of the surveyor, the mechanical engineer, the mining engineer, the hydraulic engineer, the electrical engineer, and the sanitary engineer, and has acquired some familiarity with the practical work of each." — *Plympton*.

"The exact course of preparation which is best for the student of engineering to pursue, although it should be varied according to circumstances, seems to be somewhat as follows: Assuming, as in other professions, that the age at which he is supposed to commence his career is about twenty-one or twenty-two; having pursued a general course of education at school until he is sixteen or seventeen, he should then commence his special course. In this he must learn something of science and something of art; but he must also learn how the one can be brought to bear upon the other. Mathematics and the natural sciences must form an essential part of his study; but he must not expect to make himself completely master of either. To do this would occupy more than the whole time at his disposal. He must select those branches of those subjects which most directly relate to his future work, and leave the rest as he would leave a luxury." — *Professor Reynolds*.

"The making of this selection is very difficult; the

temptation is always to take too much, and this ends only in confusion. It is but a comparatively small portion of these wide subjects that can be usefully brought to bear on engineering, and to these he must naturally restrict himself. The methods of applying these sciences to engineering problems constitute a large subject, and one that it is necessary for him to study; and besides these, he will have to devote some of his time to acquiring sufficient knowledge of the things to be done by engineers, in which to study the application of his science. And then there are yet those manual operations which are essential to bring his knowledge to a practical issue, and in which a long course of training is necessary to acquire the requisite skill, such as mechanical drawing and the use of measuring and surveying instruments, the want of facility in the use of which would prevent for a long time the student from making a practical use of his knowledge." — *Reynolds*.

"To acquire a useful knowledge in these various branches of study will require three or at least two years. The student will then proceed with his practical training, which should include as great a range of work as possible. In this he will find the knowledge he has acquired of very great help. He will recognize much that he sees and be able to judge of the most important things to which to direct his attention. After such preparation he will learn more in one year spent in the workshop or on the works than in three without it, so that by the time he has completed his training he will have as much practical knowledge as though he had spent his whole time in the workshops." — *Reynolds*.

"Of course it would be little short of affectation to pretend that, surrounded as we are by mechanical results, one cannot learn to produce the results with



which he is familiar unless he is first able to deduce them from elementary principles. This would be equivalent to saying that an English child could not speak English until he had mastered the rules of grammar. But to teach a language without the aid of grammar is not only a waste of labor, but a sure means of producing an imperfect result, and this is equivalent to teaching engineering without science. Such is the hold which the study of natural science has taken on all classes, and such are the facilities for those in the lower ranks to rise, that it seems to be quite certain that if those who have the best opportunities of qualifying themselves as engineers neglect to do so in the highest manner they will find their places filled by those who, while rising from below, have made better use of their opportunities." — *Reynolds*.

"Of the ordinary branches of elementary education arithmetic is especially important to the student of engineering; and he ought to be familiar in particular with the most rapid ways of performing calculations consistent with accuracy." — *Plympton*.

"In order that the technical school shall be in the highest degree useful, fruitful, and economical, it must instruct not men of good general education, but artisans of good general education. The art must precede the science. The man must first feel the necessity and know the directions of the larger knowledge, and then he will master it through and through. Mark how rapidly the more capable and ambitious of practical men advance in knowledge derivable from books as compared with the progress of bookmen, either in books or in practice. Many men have acquired more useful knowledge of chemistry in the spare evenings of a year than the average graduate has accomplished during his whole

course. Those men realized that success was hanging on their better knowledge; familiar with every changing look of the objects and phenomena they detected the constant play of the unknown forces which underlie them and longed for a guide to their operation as the mariner longs for a beacon light. This practical familiarity and judgment at once revealed the importance of scientific facts and methods. Under what comparative facilities does the mere recitation student or even the mere analyst of a hundred bottles study applied chemistry? It is to these a matter of routine duty without the soul. They are neither stimulated nor directed by a previously created want." — *Plympton*.

"Professional and business success is not, even in America, the chief end of life. All the social and political relations, and even personal happiness, are governed not by the specialties, but by the balance of mind culture. What, then, shall we say of the policy of wealthy parents — not indeed general, but too frequent — of placing an uncultured boy in a technical school, and then in works and business, without giving him one chance to acquire a general and polite culture?" — *Plympton*.

"The proposition, then, is not that mere school boys shall go into works and then into technical schools, but that young men of more advanced general culture when they do begin the business of technical education shall apply to nature first and to the schoolmaster afterward." — *Plympton*.

"Yet it may be urged in favor of beginning in a technical school rather than in the works that mental capacity for the future acquisition and application of facts and principles is thus developed. But mental

training is not the product of the technical schools alone. Habits of logical thinking and power of analysis and generalization may be acquired in any school; and a positive objection to beginning with a technical school is that it cannot stop at logical methods and sciences which are essentially abstract. It also attempts to teach about subjects and phenomena the first knowledge of which, if it is to be broad and genuine, has to come from the fountain head." — *Alexander S. Holley, former President of American Institute of Mining Engineers.*

"It will hardly be urged against the precedence of practical culture that the student will get out of practice while he is in the school. He may indeed lose dexterity, but not the better fruits of experience. In fact, those who begin as practitioners almost instinctively keep up their intimacy with the current practice." — *Holley.*

"Experience shows that a long course of technical study, preceding and unaccompanied by professional practice, is highly inexpedient." — *Ashbel Welch.*

"A most signal advantage of beginning technical education in the works is that the mind is brought into early and intimate consideration of those great elements of success which cannot be imparted in any other way — the management of labor and the general principles of economy in construction, maintenance, and working. An early knowledge of these subjects moulds the whole character of subsequent education and practice. There seems to be no corresponding advantage in beginning with a technical school. The fundamental mathematics and general information on physical science may be acquired in a preliminary school." — *Holley.*

"The greatest difficulty met with in carrying out a sat-

isfactory course of technical education in the schools, is that of finding students who have sufficient ripeness of intellect and of judgment, and sufficient physical strength, to comprehend readily and grasp fully and retain perfectly the principles which are presented to them. Boys are sent to technical schools without well-developed habits of study, with insufficient and superficial preparation, with minds unripe and with bodies still taxing their systems by the drain of that vital power needed in carrying on the operations of physical development." — *Prof. Robt. H. Thurston.*

"In my country, boys intending to devote themselves to technical occupations generally pursue the following plan, partially regulated by law: After passing through the higher grades of the common school, up to fifteen or sixteen years of age, where, to some extent, Latin and Greek, but particularly modern languages, and the elements of mathematics and the natural sciences, form a part of the system of instruction, they are regularly apprenticed to the particular branch of business they intend to take up afterwards. As apprentices they pass their regular time as carpenters, masons, pattern-makers, moulders, machinists at mines or furnaces, etc. Generally night schools or schools during part of the winter — industrial schools — are visited during their term of apprenticeship, the time so spent being allowed as regular apprenticeship. They receive little or no pay during this time, according to choice or circumstances. After spending several years in this way they enter the higher grades of technical schools or colleges, to pass through a varied course of scientific training, at the same time, in various ways, being constantly reminded of the practical duties necessary for them to perform hereafter by making excursions and visiting the public works and shops of

the country. After graduating at these schools they enter again as volunteers for a time at the different public works or private establishments, and are glad to be taken as such, without receiving any compensation, sometimes even paying for the privilege. After such a course, and proper examinations, they are only considered, even at private works, to be fit to take a subordinate position, and are often only too glad to get it." — *Oswald J. Heinrich*.

"I consider a good general education more than desirable before entering practical life, for various reasons. The principal reason is that the mind of the boy is more susceptible to mental training or exercise. During his apprenticeship, or attention to practical work, he will find out the great help he may derive from educational training." — *Heinrich*.

"The more one observes the careers of men above him, and the more one wrestles with the difficulties of one's own, the more profound becomes the conviction that the young man makes a great mistake who, because he is going to take a technical education in engineering, deliberately decides that he will not have any general culture to begin with." — *Dr. R. W. Raymond*.

"We must recognize the fact that individual character is, after all, the decisive element in success. We may devise plans without end to facilitate the manufacture of successful engineers, but the men who have fidelity, honor, virtue, courage, and that genius which has been well defined as the power of application, will make their way surely to the top, either by the help of our arrangements or in spite of them all; and of those born and bred leaders of the profession, those who have the broadest culture, other things being equal, will stand easily first." — *Raymond*.

"I would recommend that the engineering pupil get as sound a general education as possible, including the principles of science; that his early education be rather that of general culture, developing his mind, strengthening his powers of observation and judgment, teaching him to generalize. This course he should, if possible, pursue up to the age of eighteen or twenty. Before that age the mind and body are not generally sufficiently developed to endure the physical hardships of the engineer. Then let him spend several years in practice in a machine shop, in the field, in the drafting-room, and in the office. Let him learn to deal with men and things and to understand the conduct of affairs. Whether he will return to his books again depends upon what sort of a man he is."

— *Thomas C. Clarke.*

"To all classes of engineering students let him point out the immense value of acquiring and fully understanding the scientific method. This is first the art, for it does not come by nature, of observing facts and acquiring data; second, the observing the relations of phenomena and drawing conclusions therefrom; third, of verifying these conclusions by observation and experiment."

— *Clarke.*

"Engineering: we found it a craft, and we have left it a profession." — *Robert Stephenson.*

"It is safe to say that a young man, after passing through college properly and having a good sound education, who determines to succeed in the workshops at any hazard will in two years make himself so valuable in the position that he occupies as to be elevated by his employer into something higher." — *Coleman Sellers.*

"I thought of this very deeply in the case of my own sons. I was not at all surprised when I found my eldest

son, on leaving the university, accepting a position in a workshop a little better than a common laborer. He commenced by chipping the scale out of a boiler. I tell you it was the best thing for him, because he made a beginning at the bottom and did not shirk his work. It was as much as to say that he was willing to learn all that could be taught him in the shop, and he rapidly rose to a position higher than many who had been longer at work, but who had less book education to help them." — *Coleman Sellers.*

"It is impossible to make engineers out of pupils who have no engineering ability. There must be something in them that will compel them to take it up as a profession and succeed in it. I am now clearly of the opinion that, as it is not in the power of most young men to take a college course and then afterwards take a technical course, it is far better for them to obtain what scientific knowledge they can in a good college, or in a technical college where something else is taught besides the exact sciences, where they can be taught the languages — not the dead languages, but the modern languages — and taught, at the same time, rhetoric, composition, and all that will enable them to express themselves; and by all means let them have a good sound basis of mathematics before they venture their education in a workshop. Then, when they have entered the workshop, there will be time to acquire technical education without schools. I have no doubt that many who have been liberally educated have, after entering the shop, felt the want of technical education, and have broken away from the shop and gone into the schools to learn. They felt the need of obtaining more knowledge, and that the time they spent in the college or school was not sufficient." — *Coleman Sellers.*



“Why a ‘civil’ engineer? Are not all engineers civil? Engineering was and to some extent still is divided into two branches, military and civil. All engineers gave their attention either to military works or to civil works; hence the name.” — *Carter*.

## AGRICULTURE.

“ When tillage begins, other arts follow. The farmers therefore are the founders of human civilization.” — *Daniel Webster*.

THE secret of success in farming, as in all other occupations, is to know how to do it. Not only how to raise good crops, but how to raise crops that will sell to the best advantage. Tillage is an art, as Mr. Webster says; it is not an employment that is to be taken up as a last resource. It is the most independent and one of the most healthful of all employments. If you are comfortably situated on your father's farm, with good prospects before you, and are tempted to go to the neighboring city for the sake of better wages and finer clothes, think many times, and then think again, before you make the change.

You long for a change, very likely, if you are a farmer's boy. That is a feeling that is not peculiar to farmers' boys. Nine persons out of ten, in every condition of life, long for a change. We are never satisfied. The country boy longs for the city, without knowing how many thousands of city boys long for the country. And not only city boys, but city men. I wish the census could tell us how many business men in any one of the large cities are disheartened, thoroughly tired of the grind and worry of business, and look longingly for the day when their financial condition will allow them to retire to a comfortable place in the country.

It is important for you to know that this feeling is entirely reciprocal, as between city people and country people. Do not imagine that fate is dealing hardly by

you because it has placed you in the country. In many respects there is a difference between the inhabitants of cities and the people of the country. Their modes of life are necessarily different, their directions of thought. We naturally think most of what most concerns us. The city man need not wonder, like a farmer's boy, how many cows he could milk in an hour, because he could not milk one cow in a week. In these differences the advantage is almost wholly with the young man in the country. The "greenness" of a young man from the country who goes to the city is nothing compared with the greenness of the young man of the city who goes to the country. A man from the country can go into the city at any period of his working life and find something to do to earn a living. But can the city man go to the country and earn his living on a farm? Very rarely. Almost his only chance of retiring to the country lies in saving enough money to pay his way.

In writing about most occupations it is necessary to warn young men to think well and consider whether they are fitted for them. But in writing to a country boy about farming the advice must be of a different nature; he should think many times, and move very slowly, if he contemplates making a change. You know that many young men in the city make ten times as much money in a year as you do. The prospect is alluring. But perhaps you do not know that these young men are compelled to spend ten times as much in a year as you do, and that at the end of the year they have not as much left as you have. To live in any sort of comfort in a large city, a thousand dollars a year does not give a man as much chance to save as ten dollars a month and board on a farm.

You see about you, no doubt, men of mature years who

have spent their lives at farming, badly dressed, ignorant, with no breeding, enduring hardships, their wives wearing their lives away at milking the cows and doing the housework; and you naturally say to yourself that you do not wish to lead that kind of a life. Decidedly not! That is not the sort of farmer you are to be, if you are to be one at all. It is not necessary. Have you ever stopped to consider why those poor farmers are as they are? They were not prepared for any better condition in life. They had no education, no training. If they had gone to the city in early life, would they now be numbered among the city's merchants, or bankers, or great professional men? You cannot imagine such a thing. There is a certain line above which they could not have risen, whether in city or country. In the city they would be even worse off, occupying menial positions, living from hand to mouth in tenement-houses, buying their coal by the pailful. It is not the farm that is to blame, it is the man.

It is the other kind of farmer you are to consider. The man who was well trained, well educated; whose land is ploughed with industry and cultivated with intelligence; who lives in comfort and keeps a bank account; who reads the newspapers and magazines and the newest books and keeps pace with the world's progress; who belongs to various societies in the neighboring town, and makes occasional visits with his family to the city; who is at ease in any company, and able to discuss any timely subject. *His* wife does not milk the cows, nor his daughters split the kindling-wood. The country is full of such farmers. The farm does not make them; they make the farm. Again it is the man.

No man, no boy, need be ashamed to say that he is a farmer. Farming is a noble occupation. The farmer is

a producer, and he is of use in the world. The great merchant makes his money by buying goods at four cents a yard and selling them for six. The clerk earns his good clothes by standing behind the counter and measuring the goods and tying them up. Give each of these men a farm, and which of them would be ashamed of the work? Very likely neither; but the rich merchant would not think it beneath his dignity to throw off his coat and plough one of his own fields — if he could. Have you read the story of Cincinnatus? Cincinnatus was a celebrated Roman who lived nearly five hundred years before the time of Christ. He was a philosopher as well as a soldier and a statesman; he knew the calm pleasures of country life, and tilled his own farm. Rome was in danger from two powerful enemies, and to meet the emergency the Senate elected Cincinnatus dictator. He was ploughing one of his own fields when informed that he had been made dictator over the greatest empire of the world. He put on his coat and went into the city, and in sixteen days he vanquished both the hostile armies and secured the safety of his country. And then? Then, in two weeks and two days after his appointment as dictator, like a wise man he hung up his purple robes of office and went back to his ploughing. When his country needed him he was ready, but his pleasure was in his fields.

“But that has nothing to do with our own times,” I think I hear you say. “Cincinnatus could afford to be a farmer for pleasure, but I must do something to earn a living.” Very true. But there is one point about Cincinnatus that historians pay no attention to, which is worth considering. We must admit that he was a wise and great man. We cannot doubt, judging him by the standard of other men, that when he tilled a farm it was

a matter of pride with him to make it pay. The richest man can find little satisfaction in conducting a farm that does not at least pay its own expenses. The farm of Cincinnatus was close to Rome; in the very outskirts of the city. He was too wise to ignore the advantages of being near a large market for his products.

This matter of proximity to a good market is of the utmost importance in the old-settled Eastern and Middle States, where from the nature of things mammoth farms are almost out of the question. It is of as much importance in the East as proximity to a railroad station is to one of the great farms of the West. Farm products, like all other products, must reach the market. Here is an example: There are some parts of Florida that are peculiarly fitted for the production of oranges, lemons, pineapples, all kinds of tropical fruits, and winter vegetables that would bring extraordinary prices in the Northern markets. These regions are beyond any danger from frosts or cold winds, and the soil is rich. You or I could go down there and produce great quantities of oranges, and have carloads of luscious melons in December or January, tomatoes, cucumbers, all the tender vegetables of the garden, while Northern farms are white with snow. But after producing them we should have to sit down and eat them, for we could not send them to market. I refer to the extreme southern part of the State, a region not yet reached by railroads or steamboats. Every natural advantage there is nullified by the lack of transportation; and that is only one instance out of thousands that might be cited. No amount of industry, no knowledge of the work, no training or education, can bring success to the farmer who farms in the wrong place.

In the Eastern States there is much farming in the right place but in the wrong way. We are too ready to

believe what was true in our grandfathers' time, that farming consists in raising good crops of grain and hay, and selling the surplus after we have fed ourselves, our families, and our animals. And finding that producing hay and grain is not profitable, we are too ready again to jump at the conclusion that farming does not pay. The right kind of farming in the right place is sure to pay.

If you are an Eastern farmer's son you have no doubt heard over and over again why farming has "run down." That the great farms of the West, with cheap and quick transportation to the seaboard, deliver wheat and corn and other grains in the Eastern cities at prices that the Eastern farmer cannot compete with. That young men flock into the cities, on account of the higher wages there, making farm "help" not only scarce, but unreasonably dear. There is truth in both these things. But are we to conclude from them that farming has "run down," or that the farmer should change his methods? The cities into which the young men flock are growing rapidly; every year they have more mouths to feed: mouths that are not satisfied to be fed with grains alone. The more the towns and cities grow, the larger does the farmer's field become; the more demand is there for his products. Suppose that a hundred thousand young men, which is merely selecting a number at random, quit the farm every year and go into the city. While they were on the farm they had no food to buy. When they reach the city they must still eat, and must buy food, and they therefore enlarge the farmer's market. Like every other business man, the farmer who desires to sell his wares must have such wares as the public need.

This looks like advising the young farmer to go into market-gardening; and market-gardening in the right



place and by the right man may be made a very profitable business. But that is only one of scores of specialties which offer good prospects to the intelligent farmer. Do not imagine, let me caution you, because you understand the general work of the farm, that you are competent to conduct a market-garden. That is a branch of the business requiring special training, peculiar abilities, and great caution. If you are interested in the subject, or in some of the other farming specialties that I shall mention presently, you will find much detailed information in a book written by the late Peter Henderson, of New York, entitled "Gardening for Profit."

The selling of general farm and garden produce in a neighboring town is always profitable if rightly managed — profitable in the sense of supporting a comfortable home, a well-stocked larder, and supplying a reasonable amount of money after all expenses are paid. For a single instance, among many thousands, let me tell you of a man I know who, taking up this business from choice, is as comfortably situated as any man in this world, no matter how rich. This man spent his boyhood on a farm, and then learned the carpenter's trade; few city men, without such an early training, could do as he does. He became a sewing-machine agent, and then a manager of agencies, and developed such talent for the work that he commanded large salaries in the largest cities, and is still sought after by the sewing-machine companies. As he advanced in years, the common longing for the country and the farm came upon him. He gave up his position, and bought sixty acres of land about two miles from the county-seat of a flourishing Pennsylvania county. It was a farm that had starved out several previous owners, because it was "worn out," and he bought it at a very low price. There was an old stone

house upon it. With his own hands he built a large frame residence, putting his farmer into the stone house. Then he began experimenting with fertilizers and chemicals, and made some valuable discoveries of his own. In two or three years the "worn-out" farm was the model farm of the whole county. For years he has been clearing \$1,500 a year from the place in money, besides supplying his own needs and his farmer's, by sending to the town the best butter to be bought in that market, the freshest eggs, the earliest Northern green corn, and a score of other articles that the land or its animals produce. To be sure, he is specially fitted for such work; but any young man who would make a comfortable living out of a small investment has the opportunities for such a special training before him.

"Stick to the farm" should be changed to "stick to *a* farm." It is not always advisable to remain in the same old place. A farm ready for you to take free possession of in one situation may be more costly than one that you must buy in another situation. As times change, the needs of the public change with them. Many seaports that were of first importance a century ago are mere fishermen's havens now, because our large ships require deep water, and their harbors are shallow. It is just so with farms. A farm that your grandfather made a fortune out of may not be worth cultivating to-day. On the other hand, it may need nothing but a man of intelligence and modern methods at the head of it. In answering this important question for yourself, the farm's situation, its proximity to good markets, or cheap and rapid transportation, count for more than the condition of the soil. If it is only a "worn-out" farm there is hope for it.

What is a "worn-out" farm? Have you ever stopped

to think? The expression means that certain constituents of the soil have been exhausted by long or improper cultivation, does it not? Is there any chemical lacking in any soil that the scientific farmer cannot supply to it? When I see the wonderful market-gardens in the upper part of New York City I am forced to think that soil is nothing compared with situation. That is the most unpromising soil in the world—clay and rock; yet the market-gardeners gladly pay a rental of \$500 a year for an acre of it, because it is so near the markets. That seems a large price, but it does not nearly pay the taxes on the land, much less the interest on the money invested. They are not afraid of the soil. In a single season a field of mud and rusty tin cans becomes a beauty-spot, and they pay the enormous rent and make money.

In all parts of the country are farming specialties that a young man should know something about before concluding to take his chances in the city. Do you know anything of the openings for fruit-growing in southern California? Write to a land agent for information, and believe five per cent. of what he tells you. When you know "the lay of the land" you can get further information from disinterested sources. Some land agents are very good men, but their business is to tell only one side of the story. There are millions of acres of good land in the Southern States waiting for the plough. In southern Georgia you can buy beautiful pine land for from five to ten dollars an acre, with all the timber at hand for buildings and fences. Growing peaches for the Northern markets is a large industry in that section. Two young men going together to one of the Southern States with \$500 can make a comfortable living out of the maligned "six-cent cotton" till they know the situation well enough to try more promising ventures.

Nearer home there are many opportunities : small fruits, poultry, mushrooms, fancy stock-raising. I know a man near Boston who makes a large income by breeding mastiffs ; another in Philadelphia, who, when a boy, would have no other plaything than a little garden, and who is now one of the largest and richest seedsmen in this country.

On the great grain farms and stock farms of the West are countless openings. If your inclination leads you that way, go there with a good education and a determination to make yourself indispensable. The larger the farm, the greater need its owner has for young men of brains who can be depended upon. In time you can become the owner's manager, and perhaps eventually his partner: Takes time? Of course such a thing takes time. If you go to the city, how long do you think it will take you to become a great merchant or a great banker? You must sweep the banker's office for a time before you can sit in his chair.

There is a better chance for the farmer now in this country than there ever was before. He has better opportunities for making money. But not the ignorant farmer. He must have as much education and as much brain as the merchant or the manufacturer. If you cannot make a success of the farm it is not the farm's fault, it is your own.

“I have fed like a farmer : I shall grow as fat as a porpoise.” — *Swift*.

*HE WHO BY THE PLOUGH WOULD THRIVE.*

“THE most successful cultivators of the soil in America, whose opinions on agricultural subjects and whose practices are eagerly sought and widely disseminated and adopted, are most generally men who are not ashamed or mortified to be seen in a ditch, with a tow-frock on, or holding the plough or swinging the cradle.” — *S. Edwards Todd*.

“Reason and experience teach us that manual labor is by no means incompatible with the growth and vigor of our intellects.” — *Todd*.

“The farmer must not always be ‘whistling along for want of thought,’ but he must think beforehand — not a year afterwards — what he can do practically to bring all his practices and farming operations to a greater degree of perfection for the year to come than they were the past season.” — *Todd*.

“No man ever shortened his days by energetic manual labor alone; but bad habits have sent thousands to untimely graves whose demise was attributed to hard work. Intellectual culture and manual labor must go hand in hand.” — “*The Young Farmer’s Manual*.”

“The farmer should be a good mechanic, theoretically if he is not practically. More than one-half of our country mechanics who work at their trade for a livelihood are incompetent to perform a difficult job in a neat and workmanlike manner without a foreman. For this reason, if for no other, a farmer should be a good

mechanic, in order to give proper directions how a piece of work should be performed, or whether or not it is perfect or faulty after it is finished." — *Todd*.

"Agriculture is civilization." — *E. Emmons*.

"Agriculture is the most general occupation of man." — *Webster*.

"Agriculture is favorable to good morals." — *Coleman*.

"The farmer should be a good engineer. He needs to have a good knowledge of the strength of materials, which lies at the very foundation of successful engineering, — that he may be able to determine without hesitancy whether the various parts of a tool are of correct proportion; whether one part of a machine is made four times heavier or lighter, as the case may be, than is required or necessary." — *Todd*.

"The prudent farmer now with timely care  
Forecasts his labors; gives to each its share.  
No force is misapplied; he keeps in view  
The faithful, trusty, and the idle too.  
With plans well formed for every future day,  
His forces execute without delay."

*Edwards*.

"Why does one farmer often accomplish as much or even more labor with two workmen than his neighbor does with four laborers of equal strength? Why do the operations on one farm move along most effectively in every respect, without any hurry or bluster or fretting or worrying, while on the next farm all is hurry and excitement and but little work done? The answers to these interrogations may always be expressed in a few words which cannot be gainsaid: a want of wise plans and an improper appropriation of the forces of the farm." — *Todd*.

“Every farmer, in order to be successful, must have well-digested plans for performing every operation connected with his business. He can never hope to be successful who goes to work at random. The successful farmer will be a thinking man; and all his plans will be so harmonious that little if any of his available force will be improperly appropriated under any circumstances. He will never send two laborers to perform a little job which one can do in about the same period of time. It cannot be denied that multitudes of pretty good farmers are stupendously deficient on this point; and it is no uncommon occurrence to see them employ two, three, or even four laborers to do what one hand could perform very advantageously.” — *Todd*.

“Agriculture is better than war.” — *Emperor Shun*.

“Agriculture is the Archimedean lever which, though it does not move the world, tends to fill it with plenty, with moral health and human happiness.” — *J. Buel*.

“Good husband without, it is needful there be;  
Good housewife within is as needful as he.”

*Tusser*.

“The housewife and her operations are the great regulators of the operations of the farm. There is too much truth in the old maxim for fiction, that ‘if a man would succeed well in his livelihood, he must ask his wife.’” — *Todd*.

“A man may spare and yet be bare,  
If his wife be naught — if his wife be naught;  
But a man may spend, and have cash to lend,  
If his wife be aught — if his wife be aught.”

*Old Rhyme*.



“Soils are derived directly or indirectly from the rotting or decay of rocks. If all the earthy matter that composes soils could be removed from the surface of the earth the remainder would be solid rock. Rocks have been formed by the action of fire and water; and hence they are classed as igneous, that is, produced by the action of fire, or aqueous, produced by the action of water. The igneous form but a small proportion of the outer rocks of the world, yet they are of great importance, as it is through their decay or breaking-up that the other rocks have been formed.” — *Edw. B. Voorhees*.

“The sub-soil lies immediately underneath the soil, and rests upon solid rock. The main distinction between soil and sub-soil is that the soil contains more organic or vegetable matter, is more finely divided, and is less compact than the sub-soil. The sub-soil may be regarded as something between soil and rock, and partaking in part of the characteristics of both. The sub-soil serves to gradually supply the constituents that are removed by crops from the surface soil, and also performs important functions as a reservoir for moisture, and as a medium for the roots of plants. Its character then materially modifies the fertility and productiveness of the soil proper.” — *Voorhees*.

“Nitrogen, phosphoric acid, potash, and lime are called the essential fertilizing elements, because they are more important than any others that plants require; and a manure is useful in proportion to the amount and availability of these constituents contained in it.” — *Voorhees*.

“Farm-yard manure is one of the most important and useful of the natural manures. It is both a direct and indirect manure: direct in containing nitrogen, phosphoric acid, potash, and lime, which are actual fertilizing

constituents ; and indirect in containing organic or vegetable matter, which aids in the improvement of the physical character of the soil. It is sometimes called a general manure, because as it contains all the constituents of plant growth, it is liable to be generally useful on all soils." — *Voorhees*.

"It is a trite but usually true maxim that the workman is known by the chips he makes and by the tools he uses. A good workman, as a general rule, will not work with poor and awkward tools, because it is bad policy. He knows that with poor tools he is required to exert much more physical strength in doing a given job, and that he makes little progress, and many times cannot do a piece of work in any other than an inefficient manner. Some men always use poor tools. A good tool of any kind is the exception, and not the rule ; and if they chance to get a good tool it is of short duration, for it is soon broken or stove up, or injured in some manner, so that it is a poor one." — *Todd*.

"What is a lawful fence ? Uncle Will's lawful fence, as he described it in court, was : 'Horse-high, bull-strong, and pig-tight.' " — *Todd*.

"The young farmer need have no apprehension that he may cut a drain in some places where it will injure the soil by draining it too much. There is but little danger of draining a field so much as to injure it. Most soils operate like a sponge in retaining water." — *Todd*.

"Who can estimate the importance of agriculture, in a national point of view, as controlling the character, prosperity, and independence of our country ? " — *E. Mack*.

"An agricultural life is one eminently calculated for human happiness and human virtue." — *Josiah Quincy*.

"Agriculture is doubtless among the oldest, most honorable, and most important pursuits of civilized nations." — *Rogers*.

"Agriculture was the first occupation of man, and as it embraces the whole earth, it is the foundation of all other industries." — *E. W. Stewart*.

"The treasures and delights of agriculture are so various that they are not easily to be described and never to be despised." — *S. Croxall*.

"The intelligence of the agriculturalist, we believe, will compare favorably with that of any other class in the land; but it is our conviction that agriculture as a business is not so critically and systematically studied by men engaged in it as by men in other trades and professions." — *D. D. T. Moore*.

"Farming is always a failure when a man knows nothing about it; if a man can afford to make a large outlay for his own amusement and the health of his family, let him hasten to his country purchase; but no one save a city fool will think to keep a business in town and make a farm financially profitable." — *Talmage*.

"One of the greatest embarrassments of the farmer is the want of proper education for his calling; in other arts and professions we employ only those who are properly trained for their business. The reason is evident. We do not encourage an uneducated physician or a mechanic who is not master of his trade; why then do we expect men to succeed in farming who know no more of the nature of soils nor of the adaptation of different species of manures to the various kinds of grain, grass, vegetables, and fruits than they do of the rotation of day

and night or of the seasons in one of the newly-discovered planets." — *M. P. Wilder.*

"The man who stands upon his own soil; who feels that by the law of civilized nations he is the rightful owner of the land he tills, is by the constitution of our nature under a wholesome influence not easily imbibed from any other source. Perhaps the farm of this man has come to him from his fathers; they have gone to their last home; but he can trace their footsteps over the daily scenes of his labors; the roof which shelters him was reared by those to whom he owes his being; the favorite fruit tree was planted by his father's hand; he sported in his boyhood by the side of the brook which still winds through his meadow; through the field lies the path to the village school of his earliest days; he still hears from his window the voice of the Sabbath bell which called his father and his forefathers to the house of God; and near at hand is the spot where he laid his parents down to rest, and where he trusts, when his hour has come, he shall be devoutly laid by his children. These are the feelings of the owner of the soil; words cannot paint them; gold cannot buy them; they flow out of the deepest feelings of the heart; they are the life-spring of a fresh, healthy, generous national character." — *Edward Everett.*

"The practical farmer should be continually improving his mind by study and reflection: reading and study in his leisure hours; reflection and observation in his daily toil; the field of his labors is unbounded, and his mind could be continually employed in searching out the nature of the soils and what they require to make them productive." — *J. R. Lawton.*

"Does the farmer aim at a life useful and beneficial to his race? Let him remember that every acre that he

reclaims, every blade of grass that he bids to grow where none grew before, ameliorates the condition of his fellows. Does he aspire to wealth? Let him reflect that his gains, if less brilliant and striking than those of trade and the professions, are more certain and uniform, and that gradual improvement of his estate and the silent but continued rise of property promise financial prosperity." — *E. H. Derby.*

"The farmer has no need of popular favor; the success of his crops depends only upon the blessing of God upon his honest industry." — *Franklin.*

"If the farmer will not study science because it is interesting he must study it because it is useful — because it is necessary to the successful cultivation of his land." — *J. Tufts.*

"The sages and heroes of Greece and Rome not only directed the operations of farming, but thought it no disparagement to till the soil with their own hands." — *E. Mack.*

"The farmer is independent. With the mechanic and manufacturer as his allies he makes our country safe against foreign foes, for it becomes perfect by its own resources." — *Bancroft.*

"The situation of the independent farmer stands among the first for happiness and virtue; it is the one to which statesmen and warriors have repaired, to find in the contemplation of the works of Nature that serenity which more conspicuous stations could not impart." — *Quincy.*

"The farmer is never too old to learn until he is too old to labor." — *J. R. Lawton.*

“He who would look with contempt upon the farmer’s pursuit is not worthy the name of man.” — *Henry Ward Beecher.*

“Trade increases the wealth and glory of a country, but its real strength and stamina are to be looked for among the cultivators of the land; in the simplicity of the farmer’s life is found the simpleness of virtue and the integrity and courage of freedom.” — *Lord Chatham.*

“Command large fields, but cultivate small ones.” — *Virgil.*

“The frost is God’s plough, which he drives through every inch of ground in the world, opening each clod and pulverizing the whole.” — *Fuller.*

“We may talk as we please of lilies and lions rampant, and spread eagles in fields d’or or d’argent, but if heraldry were guided by reason a plough in a field arable would be the most noble and ancient arms.” — *Cowley.*

“In a moral point of view the life of the agriculturist is the most pure and holy of any class of men: pure because it is the most healthful and vice can hardly find time to contaminate it; holy because it brings the deity perpetually before his view, giving him thereby the most exalted notions of supreme power and an endearing view of the divine benignity.” — *Lord John Russell.*

“No special amount of prophetic acumen is required to foresee that the time will soon come when the people of this country must necessarily place a much higher value upon all kinds of food than they do at present or have done in the past. In this we are pre-supposing that in the natural course of events our population will continue to increase in nearly the same ratio as it has since

we assumed the responsibilities of an independent nation.”  
— *Andrew S. Fuller.*

“Among the various sources of acceptable and nutritious food-products heretofore almost entirely neglected in this country the edible nuts stand preëminently and conspicuously in the foreground, awaiting the skill and attention of all who seek pleasure and profit from the cultivation of the soil.” — *Fuller.*

“The only objection I have heard of as being urged against planting fruit and nut trees along the highway, is that they tempt boys and girls — as well as persons of larger growth — to be trespassers. As we cannot very well dispense with the small boy and his sister, I am in favor of providing them bountifully with all the good things the climate will offer. It is a truism that conscience is never strengthened by an empty stomach.” — *Fuller.*

“A mile in this country is 5,280 feet, and if trees are set 40 feet apart — which is allowing sufficient room for them to grow during an ordinary lifetime — we get 133 per mile in a single row; but where the roads are three and four rods wide, two rows may be planted, one on each side, or 266 per mile. With such kinds as the Persian walnut, the American and foreign chestnuts, we can safely estimate the crop, when the trees are twenty years old, at a half bushel per tree, or 66 bushels per single row, and 133 for the double row per mile. With grafted trees of either kind we may count on double the quantity named, presuming of course that the trees are given proper care.” — *Fuller.*



## THE ARMY THROUGH WEST POINT.

"To be properly prepared for war is one of the most effectual means of preserving peace." — *George Washington.*

THE young American who contemplates a military career should have clearly drawn in his mind the distinction between the ranks in the army and a commission; and also the difference between the ranks in the American army in time of peace and in time of war. In general terms, a private can scarcely hope to achieve a commission. He must as a rule remain in the ranks throughout his entire career, almost his only chance of promotion being to reach the position of a non-commissioned officer, such as a corporal or sergeant.

In time of war most young Americans are ready to serve their country without regard to the position they can hope to occupy. We are all ready to give our lives, if necessary, for the defence of our institutions and homes, or in support of any great principle which we believe to be right. When the nation is in peril no patriotic American can hesitate for a moment. He serves as cheerfully as a private as he would serve in a higher position if he were trained for it.

But in time of peace the conditions are altogether different. When no danger threatens the country, when we are at peace with all mankind, as we usually are, a man who enlists in the ranks of the army does so generally to secure a livelihood, much as he goes into any business or profession in civil life.

To spend a lifetime as a private in the army is not a

high ambition for any bright young American. Certainly the ranks in the army must be filled, and it is desirable that they should be filled largely by Americans; but there is little danger of lack of material for making up the small standing-army required in this country in time of peace. There are always, unfortunately, many men, even in America, who have failed in other occupations and who go into the army as a last resort. There are many others who, on account of their position or circumstances, or for want of higher ambitions, are willing to remain in the ranks. It is not to these failures or to these boys without ambition that this book appeals. If you have sufficient ambition, sufficient interest in your future welfare, to buy and read a book of this kind; or if you have friends who take sufficient interest in you to put such a work into your hands, the probabilities are that you should and will look forward to something higher than a private's position in the regular army.

The aspirant for a commission in the army must naturally turn his eyes toward the Military Academy at West Point, for in time of peace it is through the West Point training that a man becomes an officer in the United States Army. Each Congressional district and each territory, as well as the District of Columbia, is entitled to have one cadet in the academy. Twenty cadets-at-large are also appointed by the President, but these appointments are usually given to the sons of distinguished military officers. The appointments, except those made by the President, are made by the Secretary of War, at the request of the Representative or delegate in Congress from the district or territory; and the person appointed must be an actual resident of the district or territory from which the appointment is made. Any young man between the ages of seventeen and twenty-two years, no

matter in what part of the country he lives, is entitled to make an application at any time, by letter, to the Secretary of War, to have his name placed upon the register, that it may be furnished to his Representative or delegate when a vacancy occurs.

The application must give the full name, date of birth, and permanent residence of the applicant, with the number of the Congressional district in which he lives. Such an application, of course, is a long way from securing an appointment, which must come through the Representative in Congress. Congressmen have different methods of making these appointments. Some members appoint the sons of their friends or use the power in other ways for their political or social advancement. Others, with a truer American spirit, give public notice of the vacancy, and hold a competitive examination of all the candidates, giving the appointment to the young man best fitted to receive it.

After receiving the appointment, whether it is secured by influence brought to bear upon the Congressman or by winning it in a competitive examination, the candidate has taken only the first step. He is next subjected to a rigid physical examination, and to a mental examination, which latter some good authorities consider ridiculously easy, and which equally good authorities consider entirely too severe.

Every aspirant for admission to the West Point academy should give his first attention to the physical examination. No matter what may be his mental acquirements, he cannot enter the Military Academy unless he is physically fitted for military service; and this is fortunately a matter which he can determine at home before even making application for an appointment, and so may save himself possibly much useless trouble. The



NELSON A. MILES.

Maj.-Gen. Nelson A. Miles, commander-in-chief of the armies of the United States, became a volunteer lieutenant of infantry in 1861, and was commissioned a colonel in 1862, after engaging in the battles of the Peninsula and Antietam. He was commissioned a major-general in 1865 and was mustered out of the volunteer service in 1866. His career in the regular army began in the same year, when he was appointed colonel of the 40th regular infantry. He succeeded General Custer in the Sioux war in Montana, drove Sitting Bull over the border, and captured Chief Joseph. In 1886 he compelled Geronimo to surrender.



Superintendent of the Military Academy has furnished me with a list of the causes, the physical conditions, which are sufficient to disqualify an applicant; and the young man who desires to enter the academy cannot do better than to take this list of physical disabilities to his family physician, and have a physical examination made before proceeding farther. Following is the list:

Every candidate is subjected to a rigid physical examination, and if there is found to exist in him any of the following causes of disqualification, to such a degree as would immediately or at no far distant period impair his efficiency, he is rejected:

1. Feeble constitution; unsound health from whatever cause; indications of former disease; glandular swellings or other symptoms of scrofula.

2. Chronic cutaneous affections, especially of the scalp.

3. Severe injuries of the bones of the head; convulsions.

4. Impaired vision from whatever cause; inflammatory affections of the eyelids; immobility or irregularity of the iris; fistula lachrymalis, etc.

5. Deafness; copious discharge from the ears.

6. Loss of many teeth, or the teeth generally unsound.

7. Impediment of speech.

8. Want of due capacity of the chest, and any other indication of a liability to a pulmonic disease.

9. Impaired or inadequate efficiency of one or both of the superior extremities on account of fractures, especially of the clavicle, contraction of a joint, deformity, etc.

10. An unusual excurvature or incurvature of the spine.

11. Hernia.

12. A varicose state of the veins of the scrotum or spermatic cord (when large), hydrocele, hæmorrhoids, fistulas.

13. Impaired or inadequate efficiency of one or both of the inferior extremities on account of varicose veins, fractures, malformation (flat feet, etc.), lameness, contraction, unequal length, bunions, overlying or supernumerary toes, etc.

14. Ulcers, or unsound cicatrices of ulcers, likely to break out afresh.

Your own physician can tell you almost to a certainty,

after examining you, whether you can pass this examination or not. If you cannot any further effort to obtain admission will be pure waste of time. But if you are in such good physical condition that you fulfil the bodily requirements for admission you may consider that bridge safely crossed and give your attention to the mental examination.

The academical examination is so long that I can give here only a few extracts from it; but the same circular which has been sent to me, giving full details of both the physical and mental examinations, will be sent to any young man upon application to the Superintendent of the Military Academy at West Point.

Two further paragraphs I shall copy from this circular before proceeding to give a brief synopsis of the academical examination :

It is suggested to all candidates for admission to the Military Academy that before leaving their place of residence for West Point they should cause themselves to be thoroughly examined by a competent physician and by a teacher or instructor in good standing. By such an examination any serious physical disqualification or deficiency in mental preparation would be revealed and the candidate probably spared the expense and trouble of a useless journey and the mortification of rejection.

It should be understood that the informal examination here recommended is solely for the convenience and benefit of the candidates themselves, and can in no way affect the decision of the academical and medical examining boards at West Point.

The academical examination, the candidate should know, is harder than it looks. One of the rules of the Military Academy is to teach few things, but to teach them thoroughly. The subjects covered in the examination are reading, writing, and orthography, arithmetic, grammar, geography, and history.



In reading the candidate must be able to read understandingly, with proper accent and emphasis. In writing and orthography he must be able, from dictation, to write sentences from standard pieces of English literature, both prose and poetry, sufficient in number to test his qualifications both in handwriting and orthography. He must also be able to write and spell correctly from dictation a certain number of standard test words.

In arithmetic he must be able to explain accurately and clearly its objects, and the manner of writing and reading numbers — entire, fractional, compound, or denominate; to perform with facility and accuracy the various operations of addition, subtraction, multiplication, and division of whole numbers, abstract and compound or denominate, giving the rule for each operation, with its reason, and also for the different methods for proving the accuracy of the work. He must be able to explain the meaning of reduction, its different kinds, its application to denominate numbers and reducing them from a higher to a lower denomination and the reverse, and to equivalent decimals; to give the rule for each case, with its reason, and to apply readily these rules to practical examples of each kind; to explain the nature of prime numbers and factors of a number; to explain the nature of fractions, common, or vulgar, and decimal; to define the terms “ratio” and “proportion,” to give the properties of proportion, and the rules and their reason for setting and solving questions in both simple and compound proportion or single and double rule of three, and to apply these rules to examples. The candidate must not only know the principles and rules above referred to, but must have such a thorough understanding of all the fundamental operations of arithmetic as will enable him to combine the various principles in the solu-

tion of any complex problem which can be solved by the methods of arithmetic. In other words, he must possess such a complete knowledge of arithmetic as will enable him to take up at once the higher branches of mathematics, without further study of arithmetic.

Different examples in arithmetic are used every year, but those following, which have been used in former examinations, will give some idea of their character :

Multiply 4.32 by .00012.

Explain the reason for placing the decimal point in the answer ; the rule for doing so is not the reason.

Divide 3380321 by MDCCXCIX, and express the quotient by the Roman system of notation.

Change .013 to an equivalent fraction whose denominator is 135.

How many men would be required to cultivate a field of  $2\frac{3}{8}$  acres in  $5\frac{1}{2}$  days of ten hours each, if each man completed 77 square yards in 9 hours ?

A wins 9 games out of 15 when playing against B, and 16 out of 52 when playing against C. How many games out of 118 should C win when playing against B ?

English shillings are coined from a metal which contains 37 parts of silver to 3 parts of alloy ; one pound of this metal is coined into 66 shillings. The United States silver dollar weighs 412.5 grains, and consists of 9 parts silver to one part of alloy. What fraction of the United States dollar will contain the same amount of silver as one English shilling ?

In English grammar the candidate must be able to define the parts of speech, and give their classes and properties ; to give inflections, including declension, conjugation, and comparison ; to give the corresponding masculine and feminine gender nouns ; to give and apply the ordinary rules of syntax ; to parse fully and correctly any ordinary sentence, omitting rules, declensions, comparisons, and principal parts, but giving the subject of each verb, the governing word of each objective case, the word for which each pronoun stands, or to which it refers ; the

words between which each preposition shows the relation ; precisely what each conjunction connects ; what each adjective or adverb qualifies or limits ; the construction of each infinitive, and generally showing a good knowledge of the function of each word in the sentence ; omissions are taken to indicate ignorance. To correct in sentences or extracts any ordinary grammatical errors, such as are mentioned and explained in ordinary grammars. It is not required that any particular grammarian or text-book be followed, but rules, definitions, parsings, and corrections must be in accordance with good usage and common sense.

In geography the candidate must be able to answer questions involving knowledge of definitions of the geographical circles, of latitude and longitude, of zones, and of all the natural divisions of the earth's surface, such as islands, seas, and capes, of the continental areas and grand divisions of the water and the earth's surface, the grand divisions of the land and the large bodies of water which in part or whole surround them ; their principal mountains, location, direction, and extent ; the capes, from what parts they project and into what waters ; their principal islands, straits, rivers, and lakes ; the political divisions of the grand divisions, their names, locations, boundaries, and capitals. The candidate must be thoroughly informed as to the general features of the United States, its configuration, location, and boundaries, both with respect to neighboring countries and latitude and longitude ; its adjacent oceans, seas, bays, gulfs, sounds, straits, and islands ; its mountain ranges, their location and extent ; the sources, directions, and terminations of the important rivers and their principal tributaries ; the lakes ; and, in short, every geographical feature of the country ; the location and termination of important rail-

road lines and other means of communication. The States and territories must be accurately located with respect to each other by their boundaries, the boundary and other large rivers of each State, the names and locations of their capitals and other important cities and towns. In short, the knowledge must be so complete that a clear mental picture of the whole or of any part of the United States is impressed on the mind of the candidate. More weight is attached to a knowledge of geography of the United States than of all other countries combined.

In history the candidate must be familiar with so much of the history of the United States as is contained in the ordinary school histories. In former examinations such questions as those following have been asked :

Name the earliest European settlements within the present limits of the United States — when, where, and by whom made.

What was the difference between the royal, the charter, and the proprietary colonies ?

How many colonies were there originally in Massachusetts and Connecticut ? When were they united ?

How many in Pennsylvania ? When were they separated ?

What were the principal events and results of the wars of King William, Queen Anne, King George, and the French and Indian ?

Explain the Navigation Act ; the Stamp Act ; Writs of Assistance.

Give the names of the Presidents of the United States in their order, and the leading events of the administration of each.

The pay of a cadet is \$540 a year, to begin with his admission to the academy, and is sufficient, with proper economy, for his support. No cadet is permitted to receive money, or any other supplies, from his parents or from any other person, without the sanction of the superintendent. The mistaken idea is held by many Americans that the cadet's pay is so much pocket money furnished by the Government, in addition to his board, clothing, fuel, lights, and tuition. Out of his pay he

must provide himself with four complete sets of uniform of standard material and pattern — gray flannel fatigue, gray flannel undress, gray cloth full dress, and white summer undress; also a gray cloth overcoat, a dozen pairs of white trousers, to start with (Capt. Charles King says that most cadets have from fifty to a hundred pairs before they get through), dozens of pairs of white gloves, and a great variety of belts, collars, cuffs, handkerchiefs, shirts, etc. He also pays his share for board, for waiters' services, and damages; for steam-heating, for gas, for barber, baths, and shoe-blackening; for support of the band, etc. So that by the time he has been a year at West Point his \$540 is gone.

Within a few days after his graduation the cadet is assigned to his regiment. If the Senate is in session he gets his commission; if not, the President gives him his letter of appointment, which holds good until the Senate acts upon it, the following winter. Officers are commissioned only by and with the advice and consent of the Senate. The young graduate is immediately entitled to the pay of a second lieutenant, from \$1,400 to \$1,500 a year. "The young officer," says Capt. Charles King, "at Fortress Monroe, or the fortifications of Boston, New York, or Newport, has difficulty in 'keeping up his position,' and making both ends meet. The graduate is in better luck who starts on the frontier."

At the end of five years' service he is entitled to an increase of 10 per cent. in his pay. At the end of the second five years he gets another 10 per cent., and so on, every five years, until in all 40 per cent. has been allowed him for twenty years' service. "As an average," Captain King says, "during the twenty years that followed the great war, graduates of West Point worked their way up to captaincies in fifteen years in the cavalry, seventeen

in the infantry, and twenty-two in the artillery. Promotion, it must be remembered, is not determined by influence, exertion, or merit. Except when filling vacancies in the staff corps, or the quartermaster's, commissary, or pay departments, promotion is solely by seniority."

The West Point training is hard, but it is invaluable, both physically and mentally, to those young men who are fortunate enough to receive it. The Military Academy graduate has learned to obey, and so knows how to command.

Following is the full course of study for the four years, with the titles of the instruction books :

#### COURSE OF STUDY AND BOOKS USED AT THE MILITARY ACADEMY.

(Books marked thus \* are for reference.)  
FIRST YEAR. — FOURTH CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Mathematics.	Davies' Elements of Algebra. Davies' Legendre's Geometry. Ludlow's Elements of Trigonometry. Davies' Surveying. Church's Analytical Geometry. *Ludlow's Logarithmic Tables.
Modern Languages.	Williams' Composition and Rhetoric. Abbott's How to Write Clearly. Meiklejohn's English Language. *Smith's Synonyms Discriminated. *Roget's Thesaurus of English Words.    *Webster's Dictionary. De Peiffer's French Pronunciation. Keetels' Analytical and Practical French Grammar. Castarède's Treatise on the Conjugation of French Verbs. Roemer's Cours de Lecture et de Traduction, Vol. I. Böcher's College Series of French Plays, Vol. II. *Spiers' and Surenné's French Pronouncing Dictionary.
Drill Regulations, U.S. Army.	Practical Instruction in the Schools of the Soldier, Company and Battalion — Infantry. Practical Instruction in the School of the Cannoneer — Siege and Light Artillery. *Blunt's Firing Regulations for Small Arms.
Use of the Sword, etc.	Instruction in Fencing and Bayonet Exercise, and Military Gymnastics.

SECOND YEAR. — THIRD CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Mathematics.	<p>Church's Analytical Geometry.  Church's Descriptive Geometry, with its application to Spherical Projections, Shades, Shadows, and Perspective.  Bass' Differential Calculus.  Church's Integral Calculus.  Johnson's Treatise on the Method of Least Squares.</p>
Modern Languages.	<p>Borel's Grammaire Française.  Hennequin's Lessons in Idiomatic French.  Revue Militaire de l'Etranger.  The Weekly Figaro.  Edgren's Compendious French Grammar.  *De Peiffer's French Pronunciation.  *Spiers' and Surebue's French Pronouncing Dictionary.  Monsanto and Languellier's Spanish Grammar.  Knap's Spanish Grammar.  Mantilla's Spanish Reader, No. 3.  Knapp's Spanish Reader.  Eco de Madrid.  *Seoane's Neumanu and Baretti's Spanish Dictionary.</p>
Drawing.	<p>Constructive Problems in Plane Geometry. Point Paths. Topography and plotting of Surveys with lead pencil, pen and ink, and colors; construction of the various problems in Descriptive Geometry, Shades and Shadows, and Linear Perspective and Isometric Projections; Practical Surveying in the Field.  *Reed's Topographical Drawing and Sketching, including Photography Applied to Surveying.</p>
Drill Regulations, U.S. Army.	<p>Practical Instruction in the Schools of the Soldier, Company and Battalion — Infantry.  Practical Instruction in the School of the Cannoneer — Light Artillery; and School of the Trooper — Cavalry.  Practical Instruction in Small Arms Target Practice.  *Blunt's Firing Regulations for Small Arms.</p>
Practical Military Engineering.	<p>Practical Instruction in the Construction of Ponton, Spar, and Trestle Bridges.</p>



## THIRD YEAR. — SECOND CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Natural and Experimental Philosophy.	Michie's Analytical Mechanics. Michie and Harlow's Practical Astronomy. Young's General Astronomy. Michie's Elements of Wave-Motion relating to Sound and Light.
Chemistry, Mineralogy, and Geology.	Tillman's Descriptive General Chemistry. Tillman's Elementary Lessons in Heat (2d Edition). Tillman's Essential Principles of Chemistry. Tracy's Anatomy, Physiology, and Hygiene. Thompson's Elementary Lessons in Electricity and Magnetism (new and revised edition). Tillman's Elementary Text-Book of Mineralogy. Le Conte's Elements of Geology (4th Edition).
Drawing.	Free Hand Drawing and Landscape in black and white. Mechanical and Architectural Drawing in ink and colors. Constructive Details; Ordnance Constructions. *Reed's Topographical Drawing and Sketching, including Photography Applied to Surveying.
Drill Regulations, U.S. Army.	United States Army Artillery Drill Regulations. Tidball's Manual of Heavy Artillery Service, U.S.A. United States Army Infantry Drill Regulations. Practical Instruction in the Schools of the Soldier, Company and Battalion — Infantry. Practical Instruction in the School of the Cannoneer — Sea Coast Artillery; and in the Schools of the Trooper, Troop and Squadron — Cavalry.
Practical Military Engineering.	Practical Instruction in the Construction of Ponton Bridges; in laying Gun Platforms, and in the Construction of Revetments and Obstacles. Practical and Theoretical Instruction in Military Signalling.

## FOURTH YEAR. — FIRST CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Civil and Military Engineering and Science of War.	Wheeler's Civil Engineering. Wheeler's Field Fortifications. Mercur's Mahan's Permanent Fortification (Edition of 1887). Mercur's Attack of Fortified Places. Mercur's Elements of the Art of War. Mahan's Stereotomy.
Law.	Davis's Elements of Law. Davis's International Law. Davis's Military Law. Andrew's Manual of the Constitution.
History and Historical Geography.	Fisher's Outlines of Universal History. *Labberton's New Historical Atlas.
Practical Military Engineering.	Practical Instruction in the Construction of Ponton, Trestle, and Spar Bridges; in the preparation and application of Siege Materials; and in laying out Field and Siege Works. Practical Instruction in Military Reconnaissances on foot and mounted; in Field Telegraphy, Night Signalling, and the use of the Heliograph. *Ernst's Manual of Practical Military Engineering.
Natural and Experimental Philosophy.	Practical Instruction in Astronomy.
Drill Regulations, U.S. Army.	United States Army Cavalry Drill Regulations. Practical Instruction in the Schools of the Soldier, Company and Battalion — Infantry; of the Trooper, Troop and Squadron — Cavalry; and of the Battery — Artillery.
Ordnance and Gunnery.	Bruff's Gunpowder and Interior Ballistics. Bruff's Ordnance and Gunnery. Ingall's System of Exterior Ballistics.

“ Shall I ask the brave soldier who fights by my side,  
In the cause of mankind, if our creeds agree? ”

*Moore.*

## THE TRAINING OF AN OFFICER.

"MANY people are beginning to learn for the first time that the last resort of law, even in our republican form of government, is the military force of the State. Similarly, by the provisions of the fourth article of the Constitution of the United States, the regular army is the last resort for the execution of the laws of the United States." — *Gen. P. H. Michie, in a lecture, "West Point: its purposes, its training, and its results."*

"The earnest efforts of the patriot soldiers and statesmen of the Revolution, animated by the words of the noble Washington, were finally successful, and a military academy was established by act of Congress, March 16, 1802." — *Michie.*

"The academy of to-day is simply the development of that of 1833, when Thayer resigned the superintendency. Nothing has been added to the requirements for admission save geography and United States history, which, together with reading, writing and spelling, arithmetic, and grammar, now complete the list. These requirements are so simple that hundreds of boys all over the country, who would never dream of being able to enter college, accept appointments to the academy." — *Michie.*

"At the knuckle-joint age very many boys are affected with heroic ambitions, while but few of them have had the necessary mental training to enable them to master the exacting course at West Point. The following letter, received only last year, in reply to the usual circular sent to every applicant, will illustrate this point:

“‘DE KALB COUNTY, TENN., June 17.

“‘WEST POINT MILITARY ACADEMY.

“‘MR. SECRETARY,

“‘HON. SIR: I received your terms sometime since. I was not seventeen years when I heard from you. I cannot come under any such terms. I will give you the terms that I will come under. I want only to study military tactics. I want to stay three years. I want \$40 per month. At the end of the term I want a position over some army of the United States. I want you to send me a round ticket there and back. I think I am both physically and mentally qualified to fill the position. I will not be out anything, but I want the position. Please answer this.’” — *Michie*.

“I once inquired of a young fellow why he came to the academy. ‘Well,’ said he, ‘I made up my mind that the people of this country were going to be divided into two classes, the oppressed and the oppressors, and I wanted to be one of the oppressors.’” — *Michie*.

“The cause of the widespread ignorance about West Point is that we are a peaceful people, rather averse to the profession of arms, and therefore the choice of a military career is generally an accident and not a purpose. It ought not, therefore, to be a matter of surprise that with the very liberal allowance of 67% of thorough as a passing mark, one-third of the candidates fail of admission, and of those who are admitted only one-half succeed in graduating. When the results of the entrance examination are announced the successful candidates are drawn up in line and receive their first instruction. It is a pathetic sight to look upon their earnest faces, and one well calculated to arouse our deepest emotions. In dress, appearance, culture, and material condition they are representative types of every section

of the country and every class of our people. But from these moments the cherished associations of birthplace and home pass little by little into that inner sanctuary where the love of mother abides, and the newer affections of service and country are implanted. It now becomes the duty of the academy thoroughly to develop his physical, intellectual, and moral character, to make him a fit person to be promoted to be an officer of the United States Army." — *Michie*.

"The first, or physical, development is a task simple enough with the very healthy boys who pass the severe scrutiny of the medical board of army surgeons. With simple but well-cooked food, ample outdoor exercise, and sufficient sleep and recreation, the bodily organs soon adjust themselves to their proper functions and give an elastic tone and a youthful vigor to the whole system. The erect carriage and graceful bearing of these young soldiers of the republic always elicit the spontaneous admiration of strangers, and are certainly handsome tributes for the trifling exactions of system and regularity." — *Michie*.

"From a superficial examination of the course of studies it might appear that it is hardly extensive enough to accomplish its purposes. For it aims at what no military institution of Europe has accomplished, namely, to furnish our whole army with a body of well-educated military men, by providing every pupil of the academy with a full military education, regardless of the corps or arm to which he may be assigned, and it does this by exacting a very thorough study of the foundation of each branch, rather than attempting an imperfect acquaintance of a much larger field of knowledge. A closer investigation will show that the subdivisions of the course number at least forty-five different distinct

subjects, and that nothing essential has been omitted.” — *Michie*.

“It was then the custom for candidates to report on June 1, or within the next few days. They were organized in sections and placed in charge of cadets selected from the second class, to prepare them as far as possible for examination about the middle of the month. I was given charge of the section of arithmetic, and have never in all my life discharged my duties with more conscientious fidelity than I drilled these boys with a subject with which I was somewhat familiar. We had gone over the entire course upon which they were to be examined, and all were well prepared except two, who seemed to be absolutely deficient upon a few subjects that they had not been able to comprehend. Not willing to omit the last possible effort on the part of these two boys I took them to the blackboard and devoted the last few minutes to a final effort to prepare them for the ordeal. While I was thus employed several of my classmates came into the room and began talking to the other candidates. While their presence annoyed me it did not interfere with my work, so I kept on intently with the two young boys until the bugle sounded.” — *Lieut.-Gen. John M. Schofield*.

“I then went to my quarters, without paying any attention to the interruption or knowing anything of the character of what had occurred; but one of the candidates, perhaps by way of excuse for his failure, wrote to his parents some account of the ‘deviltry’ in which my classmates had indulged that day. That report found its way to the War Department, and was followed by an order to the commandant of cadets to investigate. The facts were found fully to exonerate me from any participation in or countenance of the ‘deviltry’ except that I

had not stopped it ; and showed that I had faithfully done my duty in teaching the cadets. After this investigation was over I was called upon to answer for my conduct, and the names of my guilty classmates being unknown to the candidates I was also held responsible for their conduct. I answered by averring, and showing, as I believed, my own innocence of what had been done, except my neglect of duty in tolerating such a proceeding." — *Schofield*.

"My conscience was so clear of any intentional wrong that I had no anxiety about the result, but in due time came an order from the Secretary of War, dismissing me from the academy without trial. That, I believe, shocked me a little, but the sense of injustice was too strong in my mind to permit me to doubt that it would be righted when the truth was known. I proposed to go straight to Washington and lay the facts before the Government. Then I realized for the first time what it meant to have friends. All my classmates and many other cadets came forward with letters to their Congressmen and many of them with letters to Senators whom they happened to know and other influential men in Washington. So I carried with me a great bundle of letters, setting forth my virtues in terms that might have filled the breast of George Washington with pride." — *Schofield*.

"There was no public man in Washington whom I had ever seen, and probably no one who had ever heard of me, except the few in the War Department who knew of my alleged bad conduct. The Secretary of War would not even see me until I was at last presented to him by an officer of the army. Then he offered me his forefinger to shake, but he could give me no encouragement whatever. This was after I had been in Washington several weeks. My Congressman, Mr. Campbell, who had succeeded Mr.



Turner, and several others received me kindly, read my letters, and promised to see the Secretary of War, which no doubt they did, though without any apparent effect. The only result was the impossible suggestion that if I would give the names of my guilty classmates I might be let off." — *Schofield*.

"I had made an early call upon the 'Little Giant,' Senator Douglas, to whom I had no letter and whom I had never met, had introduced myself as a 'citizen of Illinois' in trouble, and had told my story. He said he was not on good terms with that administration and preferred not to go near the War Department if it could be avoided, but if it proved necessary, to let him know. Hence after all else failed, including my personal appeal, which I had waited so long to make, I told Mr. Douglas all that had occurred, and suggested that there was nothing left but to 'put in the reserve,' as the tacticians call it. He replied, 'Come up in the morning and we will go to see about it.' " — *Schofield*.

"On our way to the War Department the next morning the Senator said: 'I do not think I can do anything with this Whig administration;' but he assured me that all would be made right in the next. That seemed to me the kind of a man I had looked for in vain up to that time. I waited in the ante-room only a few minutes when the great Senator came out with a genial smile on his face, shook me warmly by the hand, and bade me good-by, saying: 'It is all right. You can go back to West Point. The Secretary has given me his promise.' " — *Schofield*.

"I need not go into the details of the long and tedious formalities through which the Secretary's promise was finally fulfilled. It was enough that my powerful friends

had secured the promise that upon proof of the facts as I had stated them I should be fully exonerated and restored to the academy. I returned to West Point and went through the long forms of a court of inquiry, a court-martial, and the waiting for the final action of the War Department, all occupying some five or six months, diligently attending to my military and academic duties, and trying hard to obey all the regulations, except as to smoking, never for a moment doubting the final result." — *Schofield*.

"That lesson taught me that innocence and justice sometimes need powerful backing. Implicit trust in Providence does not seem to justify any neglect to employ also the biggest battalions and the heaviest guns." — *Schofield*.

"To learn a few things, and to learn them well, is a rule of the academy, and it is a good rule in the instruction of youth." — *Michie*.

"It is provided that no cadet shall have as a general rule more than two distinct studies per day in which he shall have to prepare himself for recitation. This will require at least six hours of severe mental effort for preparation, and two and a half hours in the recitation-room to exhibit his proficiency therein. Of the remainder of the sixteen hours which constitute the official day, three hours are allotted to meals and recreation and four and a half to drills, parade, and guard duty. In the winter months, however, when the drills are suspended, two hours are available for either additional study, exercise in the gymnasium, or recreation." — *Michie*.

"The task assigned them for each lesson is of sufficient difficulty to require all the time at the disposal of the

cadet for its thorough mastery. He is allowed no cuts or other like indulgence. A steady pace is kept up, and woe betide the unfortunate one that lingers by the way. Justice and judgment are served out impartially at the coming examination. The steady-goer, the patient plodder, the indefatigable student, is certain of success, but the fitful worker, the careless trifler, or the indifferent scholar, soon finds that his military career is ended." — *Michie*.

"Good instruction is an expensive process, never fully appreciated by those who receive its benefits, but, like all other things of value, it yields a satisfactory return on the investment. If we observe the loving mother teaching her child we find that she constantly employs forbearance and patience, together with wonderful effort to impart the charms of knowledge to its infantile mind. Every mind approaching a new branch of learning partakes of the same nature, and needs the exercise of the same qualities in the teacher." — *Michie*.

"For the purpose of giving more thorough instruction, every class at the academy is divided into sections of not more than twelve men each, in the order of their ability as determined at the previous examination. As the course progresses, those who display the greater aptitude are transferred to higher sections, replacing others of less industry. The marks given for recitations are posted every Saturday afternoon for the inspection of cadets, so that they may be informed of their relative progress, and incited to further efforts." — *Michie*.

"This publicity has also the advantage of causing the instructor to exercise greater care and impartiality in assigning marks, for in case of a just grievance the cadet has a right of appeal to a higher authority for investiga-

tion and final judgment. Before beginning a recitation the opportunity is offered, and in the scientific department freely taken advantage of by the students, for making known the difficulties they have not been able to master in the lesson of the day. In such cases the instructor will show whether he is proficient in the application of his art." — *Michie*.

"The academy still holds to the text-book for use in instruction. I am aware that by some this is held to be antiquated, but in an academy or college where elementary training is of more consequence than the acquisition of knowledge I doubt whether the close study of a suitable text may ever be displaced by the lecture system, which, however, may have a very proper field in a university. These text-books, especially in the sciences, have been compiled particularly for the use of the cadets, and without regard to their availability elsewhere." — *Michie*.

"Objections have frequently been urged against the West Point course of instruction as being too mathematical and scientific. In answer to such criticisms it may be said that war is essentially a science which can only be learned by the same mental processes that apply to all sciences. My observation for the many years I have been on duty at West Point confirms me in the belief that it would be detrimental to increase the humanities at the expense of the scientific studies." — *Michie*.

"The average boy who is now sent to West Point to be educated may have had a good common-school training, but it is seldom the case that he has been taught how to study. Generally his masters have been content with a superficial knowledge of the tasks set him, and in the learning of them his memory has played the most

important part. The thing of most value which he acquires at West Point is the knowledge of the existence of his rational faculty and how to make use of it. He who learns this well will in the present age always be certain of success in the vocations of peace or the operations of war." — *Michie*.

"West Point has always enjoyed a high reputation for the inculcation of honor and integrity in its pupils and the manifestation of these virtues in its graduates; and it is a deserved one. No doubt an important cause of this is the high character of the military profession in this country, for it is the service of the whole people and not that of any man or dynasty or party or state or section. Subordination and personal responsibility form the basis of the military and academic discipline at West Point, and are the most important factors in the development of moral character in the students." — *Michie*.

## RANK AND FILE IN THE NAVY.

"The winds and waves are always on the side of the ablest navigators."  
—*Edward Gibbon.*

A BRAVE and energetic young American may, in an emergency, become at least something of a soldier in twenty-four hours; but even the beginning of a good sailor, particularly of a naval commander, can hardly be made in as many months. The necessity for well-trained naval officers has recently been made so plain to the nation that it need hardly be commented upon. Had it not been for the Naval Academy at Annapolis the history of our war with Spain might, and probably would, read very differently.

Practically every officer in the navy higher than a warrant officer in times of peace receives his training in the Naval Academy, the requirements for admission to which are in most points similar to those of the Military Academy at West Point. The course of instruction occupies six years, four at the Naval Academy and two at sea, at the expiration of which time the cadet returns to the Naval Academy for final examination and graduation. Appointments are made by the member of Congress for each district in the same way as for the Military Academy. All candidates must at the time of their examination for admission be between the ages of fifteen and twenty years and physically sound, well formed, and of robust constitution.

In the physical examination, which is practically identical with that of the Military Academy, attention is paid

to the stature of the candidate, and no one manifestly under-sized for his age is admitted. Five feet is the minimum height permissible in the candidate. In case of doubt as to the physical condition of the candidate, any marked deviation from the standard of height or weight adds materially to the consideration for rejection.

Candidates are examined mentally by the academic board in reading, writing, spelling, arithmetic, geography, English grammar, United States history, world's history, algebra through quadratic equations, and plane geometry (five books of Chauvenet's geometry or its equivalent). Deficiency in any one of these subjects is sufficient to insure the rejection of the candidate. The academic board are instructed not to reject a candidate whose only deficiency is in spelling, when the mark therefor is above a certain figure, to be fixed by the board.

In addition to the questions asked in the Military Academy's examination the candidate must be familiar with the general history of the world, including the rise and fall of empires and dynasties ; changes in territory as the result of wars or from other causes ; the most important treaties of peace ; relations between Church and State in different countries ; in brief, such information as may be found in the ordinary general histories. Some of the questions used in former examinations will give an idea of their scope :

Fix the positions of the following places : Glasgow, Calcutta, Trieste, Petersburg, Key West.

Describe the following rivers, telling where they rise, in what direction they flow, and into what waters they empty : Mohawk, Congo, Brahmaputra, Humber, and Dneiper.

Make a voyage from Buenos Ayres to Bombay, via the Suez Canal. Name in order the waters travelled, and the countries passed. Fix the position of three seaports that could be visited on the voyage.



Give some account of any three of the following: Ponce de Leon, Sir Francis Drake, Peter Minuit, Benedict Arnold, John Brown raid.

Give the dates, causes, and results of the three Punic wars.

Reduce  $4\frac{1}{2}$  pence to the decimal of one pound.

How many bushels of corn may be put in a barrel which will hold forty gallons of water?

A closed rectangular wooden box has the external dimensions, 17 in., 10 in., 6 in.; the wood is  $\frac{1}{2}$  in. thick; the empty box weighs  $7\frac{1}{2}$  pounds, and when filled with sand the box weighs 100 pounds. Find the weight of a cubic foot of wood and of a cubic foot of sand.

Define theorem, postulate, axiom, corollary, scholium.

Prove that if a perpendicular be erected at the middle point of a straight line, every point in the perpendicular is equally distant from the extremities of the line, and every point not in the perpendicular is unequally distant from the extremities of the line.

What is meant by a geometrical locus? Give three examples, and explain what the locus is in each.

Prove geometrically that the square described upon the hypotenuse of a right triangle is equivalent to the sum of the squares described upon the other two sides.

Each cadet is required to sign articles by which he binds himself to serve in the United States Navy for eight years, including his time of probation at the Naval Academy, unless sooner discharged. The pay of a naval cadet is \$500 a year, commencing at the date of his admission.

"The American," says the Hon. Hilary A. Herbert, late Secretary of the Navy, "takes to water by inheritance and instinct. It is as natural for him to be a sailor as for a duck to swim. It is perfectly natural too that all patriotic Americans should take pride in the exploits of our native heroes. Every boy should read the stories of Paul Jones, and Decatur, and Somers, and Hull, and Perry, and Macdonald, and Farragut, and Porter." "So much depends," he adds, "on the officer in charge

of the vessel that it has become a maxim among English merchants, 'First get your captain, and then get your ship.' If this be true of merchant vessels, still more does it apply to ships of war."

All commanding officers, and engineer officers, who are to superintend the building and running of ship's engines, constructors who are to build and repair our naval vessels, and officers to command marines, are educated at the Naval Academy.

Mr. Herbert gave some time ago, in a valuable article in the "Youth's Companion," of Boston, a description of the training of boys for the navy, both in the Naval Academy and at the Training Stations. In reference to the Training Stations he said: "Some of the boys of each class, standing highest on their final examinations, are selected each year to go abroad and take further courses of study in steam engineering and naval architecture.

"Enlisted men, it must be understood, occupy subordinate positions. The education received in the training-school is not sufficient to qualify boys for a commission. Those, however, who go through that school and perform their duties well, do become qualified to fill places as petty and warrant officers.

"The total number of enlisted men of all classes now allowed by law is 9,000, including 1,500 boys who are taken in as apprentices. These boys are usually enlisted at either the United States ship 'Richmond,' at Coaster's Harbor island, near Newport, R.I.; the United States ship 'Minnesota,' New York City; the United States ship 'Wabash,' Boston; the United States ship 'St. Louis,' League island, Philadelphia; or the United States ship 'Michigan,' on Lake Michigan.

"Boys applying for admission to the training-ships

must have the consent of their parents or guardians, must be between fourteen and seventeen years, not less than 4 ft. 9 in. high at fourteen, 4 ft. 11 in. high at fifteen, and 5 ft. 1 in. high at sixteen years; they must be otherwise of fair size, of robust frame, of perfectly sound and healthy constitution, and able to read and write — although in special cases, where the boy shows general intelligence, he may be enlisted though his reading and writing are imperfect.

“An apprentice on reaching the age of twenty-one may reënlist for the regular term of three years or may apply for and receive a discharge. Unfortunately for the Government, more than fifty per cent. of them do not reënlist.

“Two cruises are taken on the cruising-ship, one in winter and one in summer. After these cruises all the boys who are qualified are transferred to the general service. All boys are, on enlistment, rated as third-class apprentices, and receive nine dollars per month, out of which they are to pay for their clothing, which is supplied by the Government at a low rate. This, however, does not apply to the outfit they receive on enlistment, which is given them free of charge.

“After completing their term of service in the cruising training-ship, boys are rated as second-class apprentices and paid \$15 per month, and after serving one year in the cruising ship-of-war, if properly qualified they become first-class apprentices and get \$21 per month. Upon reënlistment he may hope to become a petty or a warrant officer, and if he be bright and faithful the chances are in his favor. The petty officers number about forty on each ship of good size, and they range from seamen gunners at \$26 a month up to chief master-at-arms at \$65 per month. The warrant offices open to

the graduated apprentices are boatswains, gunners, and sail-makers, with salaries depending to some extent on length of service, ranging from \$700 to \$1,800 a year. Parents and guardians, before consenting to the enlistment of their sons or wards, should consider carefully the advantages and disadvantages of sailor life.

“It is not a hard life. The labor is not severe, unless the enlistment be as a coal-passer or fireman. Still it is to be remembered that the strictest obedience is always to be rigorously enforced, and that enlisted men do all the duties about the ship, including everything necessary to keep it clean and neat. Nor can the enlisted men rise to the position of commissioned officers. The duties devolving upon the commanders of modern vessels require a higher education than can be imparted at the training-school.”

Information in regard to vacancies at the Naval Academy can be had by addressing the Chief of the Bureau of Navigation, Navy Department, Washington, D.C.

The academy occupies a beautiful site at Annapolis on the bank of the Severn river, and Congress has recently made a large appropriation for the erection of new buildings. The training, though severe, is excellent, as the high character of its graduates amply testifies. The cadets come in a short time to look not only with respect, but almost with veneration upon their officers and all that pertains to them. A few years ago some business took me to the Naval Academy, where I was hospitably entertained by several of the officers, in that part of the premises devoted to their use, which is called “Officers’ Row.” Upon my return to New York I mentioned this fact to a graduate of the academy, who was then engaged in professional work.

“Well,” said he, “do you know that I cannot imagine

any one really passing a pleasant, sociable evening in the august Officers' Row."

The officers, however, while keeping the cadets at a respectful distance, do not themselves altogether lead the lives of anchorites, but enjoy to some extent the society of the neighboring city.

The practical instruction given cadets throughout the course, in addition to the academical instruction, is as follows :

### PRACTICAL INSTRUCTION OF CADETS.

#### SEAMANSHIP.

Knotting and splicing; compass and lead line; ship nomenclature; cutting and fitting hemp rigging; cutting and fitting wire rigging; rowing, and the management of boats under oars and under sail; sailmaking; making-up, bending, unbending, and handling sails; rigging ship; stripping ship; shifting spars; getting under way and anchoring; evolutions with vessels under sail and under steam; signalling, army and navy code; management of steam launches; steam fleet tactics with steam launches.

#### ORDNANCE.

Infantry, schools of the squad, company, and battalion, in close and extended orders; artillery, schools of the battery and battalion; exercise and target practice with small-arms and guns of main and secondary batteries; exercise with cane, small sword, and broadsword; handling and firing torpedoes, use of Riehlé and Rodman testing-machines; determinations of velocities; experimental determination of range tables, also of the jump and drift; the preparation, inspection, care, and preservation of ordnance material.

Six medals are awarded annually for marksmanship: Gold, silver, and bronze medals to the cadets of the first class, as first, second, and third prizes, respectively, for excellence in rapid-fire gun practice; and gold, silver, and bronze medals to the cadets of the second class, as first, second, and third prizes, for excellence in practice with the service rifle and revolver.

#### NAVIGATION.

*Navigation* : Observations, with sextant and artificial horizon, for time, longitude, chronometer correction, latitude, and azimuth.

**Surveying:** Surveying and constructing a chart of a portion of the Severn river.

**Compass Deviations:** Swinging an iron ship, and observing the deviations and the times of vibration of horizontal and vertical needles on different courses; from these observations finding the approximate and the exact coefficients, and the horizontal and the vertical forces acting on the standard and steering compasses; also finding the heeling coefficients for the same compasses without heeling the ship; also correcting the deviations of a compass, using a navy compensating binnacle.

#### STEAM ENGINEERING.

**Shop work:** The Pattern Shop: Selection and treatment of different woods for different purposes. Elementary work of the carpenter shop, through mortising, joining, etc., to finished pattern work.

The Foundry: Iron and brass casting; the making of bronzes, alloys, etc.

The Blacksmith Shop: Forging, welding, etc.; tempering, case-hardening, etc.; bending and quenching tests of metals.

The Boiler Shop: Riveting, soft and hard patching, calking, annealing, tube expanding, etc.; testing.

The Machine Shop: Vise bench work; machine-tool work, including the setting of work; turning; planing; boring; slotting, etc.; pipe fitting; building, erection, and aligning of engines and engine fitting; preparation of working drawings and working from the same.

**Shipwork:** Management of main and auxiliary engines; getting up steam at leisure and in emergencies; fire-room and engine-room routine, firing, water tending, and oiling, routine under way when desirable to obtain maximum speed; same for maximum steaming radius; management of engines while manœuvring at sea; determining the condition and locating defects in machinery while in motion; causes and prevention of explosion of boilers, steam-pipes, gases in uptakes and in coal bunkers; lying under banked fires; coming to anchor; overhauling machinery; cleaning boilers and condensers; preservation of machinery of a vessel when out of commission; conducting progressive and full-power trials and the collecting of data.

**Ordinary Casualties:** Hot crown sheets, burst feed pipes, leaky boiler tubes and seams, burnt grate bars, hot pins and journals, fire in bunkers, flooded compartments.

Damages received in Battle: Preparations for action; temporary repairs and alternative devices and expedients to be adopted in event of receiving injury from shot or torpedoes; quick methods of disabling machinery about to fall into the hands of the enemy.

*Miscellaneous:* Use of slide rule, averaging machine, apparatus for testing oils and smoke gases; standardizing steam gauges and indicators; preparing specifications for purchase of machinery and stores; testing, inspection, and preservation of stores; preparation of various cements, paints, and varnishes in ordinary use; selection of coals; making estimates of the amount of coal on hand, prevention of deterioration, etc.; making of watch, quarter, and stations bills.

#### PHYSICAL TRAINING.

Class drills in calisthenics, free movements and with apparatus.

Special exercises to promote symmetrical development when necessary. Athletic exercises, including boxing and swimming. Dancing.

“Come as the winds come, when  
Forests are rended;  
Come as the waves come, when  
Navies are stranded.” — *Scott*.



## TRAINING OUR NAVAL OFFICERS.

"THE United States Naval Academy was founded in 1845. Its originator was the historian Bancroft, who was Secretary of the Navy during the administration of President Polk. It was placed at Annapolis, Maryland, and there it has ever since remained, with the exception of the period of the Civil War. During that time it was temporarily transferred to Newport, Rhode Island." — *T. R. Lounsbury, in "Harpers' Magazine."*

"Educated men who have had no opportunity of ascertaining the actual facts are invariably astounded when the nature and extent of the subjects demanded of the candidates for admission, both in the naval and military academies, are brought to their attention. The requirements for admission are far below institutions of a similar character that aim to fit men for the pursuits of civil life. The lowness of the present standard of admission is followed by results which work harm both before and after entrance. To it in the first place is due the large number of rejections. To the ordinary man it may seem an absurdly paradoxical statement that the failures to pass examinations decrease as the standard is raised and increase as it is lowered, yet the statement is true as a matter of fact." — *Lounsbury.*

"Applicants, with an insignificant number of exceptions, will make it their aim to prepare themselves upon the subjects required and upon nothing more. If the standard is low their preparation will be low. If the standard is high their preparation will conform. If our

colleges were to demand for entrance an examination merely in reading, writing, and arithmetic the vast majority of candidates who presented themselves would not be able to pass an examination outside of these very subjects." — *Lounsbury*.

"To every citizen of this country who knows aught of the land he lives in the word 'West-Pointer' has a significance and distinction enjoyed by perhaps no other appellation except that of 'An Annapolis man.' Both titles suggest types, perhaps different, but occupying the same position in the mind of the public. Army and navy men stand out distinctly from the graduates of other schools, and are set apart from the ordinary classification of the civilian." — *James Barnes, in the "Outlook."*

"This war (the Spanish War) has taught us much, but it has also proved us right — right in our system of making officers, first of all." — *Burnes*.

"Now the Naval Academy is beginning an era of expansion undreamed of some time ago, and Congress has approved an appropriation of one million dollars for new buildings, some of which are already in process of construction. The old Naval Academy, while bearing many beauty spots hidden here and there, was not remarkable for the architectural charm of any of its buildings." — *Burnes*.

"Here he is at Annapolis, — the old-time midshipman, — and here you will find him transmogrified into exactly what his official title represents him to be — a naval cadet on probation. And where does he come from, this future admiral? From the seaboard towns, where his ambitions have been fired by the sight of sails and ships? Has he the blood of the old sea kings in his veins? Has

he grown up with an oar in his hands, and a jib-sheet for a plaything? No, he comes from all over this broad land of ours, and the majority of him has never smelled the salt of the sea. And not, under some circumstances, until he wears a natty cap with a fowl anchor on it for some months does he set foot on the moving deck and really feel that he is a sailor." — *Barnes*.

"The figure-head of the old frigate 'Delaware' is a bust of an old Indian chief. The cadets have dubbed this image 'The God of 2.5,' that being the mark on a scale of 4.0 which each cadet must get in each branch of study to avoid being dropped, or 'bilged.'" — *Lieut. Wm. F. Fullam, U.S.N.*

"As compared with their knowledge of West Point and the army, the people of this country have shown, until quite recently, little familiarity with the Naval Academy and the navy. Navy officers on leave of absence have sometimes been subjected to the humiliation of answering such questions as 'Where is your boat?' 'Where is the navy now?' and the like, and letters have sometimes been addressed to the Naval Academy at Indianapolis." — *Fullam*.

"A candidate who had taught school for two years, and who had won his appointment in a competitive examination with seventeen others, brought the following letter of recommendation from a judicial officer of his district :

"*To the Superintendent Naval Academy :*

" 'This is to certify that I am well acquainted with —— and can cheerfully say that he is a Young Man of Good Moral character and highly respected by all who know him.

" '(Signed) —— ———.'

It is needless to say that notwithstanding the exceptional qualifications of this candidate he failed to pass the examinations. His spelling was quite as wonderful as that of his friend, the following being fair specimens: Snoar, verticle, maliceous. In geography he played havoc with the map of the world by making the following answer: 'Carthegena is in nothern part of france. Calcutta is in southern part of europe mediterranean.' — *Fullam*.

"The class of boys who present themselves nowadays is much better than formerly, although the standard of the entrance examination remains about the same. This standard ought to be raised, because the successful candidate on entering finds himself confronted with a severe course of study for which in many cases he is ill prepared. The Naval Academy is a thoroughly democratic institution, but surely it would be none the less so if it required that the brightest rather than the dullest boys in the Congressional district should represent it. The bright boy who was quite competent to reach a high standard on entering may say with reason that it is undemocratic and unfair that a dull boy should get an appointment to the Naval Academy by the use of influence alone." — *Fullam*.

"It is not surprising that with such a low standard of admission, not more than one-third to one-half of those who enter the academy succeed in graduating. The course is a severe one and the cadets are pushed from the start. This cannot be helped. Modern conditions demand that our naval officers shall reach a high standard in their preliminary training in mathematics and scientific studies. It is because of this high standard that our ships, guns, and engines have been for the most part designed, and well designed, by the graduates of

the academy. The navy has been self-supporting. Our guns and gun-carriages have not failed, because the officers who used them afloat designed and built them to meet service requirements." — *Fullam*.

"The practical instruction given at the Naval Academy is consistently progressive, varied, and complete, and it has never been so good as to-day, when the standard in studies has reached the highest point in the history of the Naval Academy." — *Fullam*.

"During the eight academic months, from October to May, inclusive, a part of each day is devoted to practical exercises. The following is a list of the out-door drills, to each of which a fair share of time is allotted: Seamanship, boats under oars and sails, steam tactics in steam cutters, signals; target practice with revolvers, rifles, machine guns and great guns, with competition for medals; infantry drills of company and battalion, skirmishes, setting-up and bayonet exercises; battery and battalion of artillery; instruction for landing parties; torpedo firing; practical navigation and surveying." — *Fullam*.

"The indoor exercises during the winter months include the following: Practical ordnance, practical electricity and steam, gymnastics, dancing, and sword exercise; instruction in the rigging aloft, the machine shop, the boiler shop, the pattern shop, and the model room. In addition to this, studies are entirely suspended during three months of the year and the time is given to a practice cruise at sea, where the instruction is exclusively practical, the cadets doing the duties of seamen and enlisted men, aloft, on deck, and in the engine-room, the senior class having charge of the deck and doing the duties of commissioned officers part of the time." — *Fullam*.

"None other than a gentleman, as well as a seaman, both in theory and practice, is qualified to support the character of a commissioned officer in the navy. Nor is any man fit to command a ship of war who is not also capable of communicating his ideas on paper in language that becomes his rank." — *John Paul Jones*.

"Enlarge the navy, and fight the enemy before they reach the strand." — *John Randolph*.

"The Naval Academy grounds consist of about fifty acres along the Severn river, walled in on two sides and bounded on the other two by the river and harbor. There are also a hundred and sixteen acres belonging to the institution recently included in the walls. In this enclosure we have a unique community, having its residences for officers and cadets, hospital, church, cemetery, library, lecture-hall or theatre, laboratories, workshops, model and recitation rooms, ships — both sailing and steam — boats, gas-works, fire department, steam fire engine, bakery, laundry, gymnasium, armory and drill rooms. In fact, here one can live in perfect comfort, every want supplied, without a thought for the world outside the academic walls." — *Ensign Walter G. Richardson*.

"The Government pays the travelling expenses of the successful candidates and requires a deposit of about \$190 to pay for clothes and books needed immediately. Many a boy takes the examination with the firm conviction that if he can pass he will thereafter stand one in his class, but strange to say, there is only one number one in each class." — *Richardson*.

"There is no inscription on the simple iron gates through which he enters the Naval Academy. They might well bear the admonition, 'Leave idleness behind

all ye who enter here ;' for certain it is that only by constant application and industry can the student succeed. He has entered a new world where his hours of going and coming, of rising and retiring, are controlled by a bugle note. His sports, recitations, studies, manner of walk, hours of meals, in fact every moment of his day, are governed by strict rules. Even his slang is different from that of the world at large, and has the odor of tar and the smack of salt water." — *Richardson*.

"The naval cadet who fails in recitation, instead of 'flunking,' as at Yale, 'busts ;' and if the failure is great, namely, a 'dead flunk,' the 'bust' is 'frigid ;' to make a 'dead rush' is to 'knock a four ;' to study hard is to 'bone ;' while he who, failing to keep up to the required standard, is dropped from the academic rolls, is 'bilged.' 'Bone,' 'bust,' 'bilged' is the alliterative history of many." — *Richardson*.

"The method of daily recitations is as follows: The lesson having been assigned the previous day, the cadets come to the recitation room supposed to have mastered the subject-matter of the text. It may be noted here that all movements of cadets, through the ground and from one room to another in the same building, except during recreation hours, are made in military order, one of the cadets being in charge of the section or division, and having authority to enforce obedience to his orders. The section is thus marched to the recitation room, and after a military report by the cadet in charge to the instructor, the latter proceeds at once with the work in hand." — *Richardson*.

"In such subjects as algebra and geometry the recitations are made principally at the blackboard in the development of formulæ, demonstration of propositions,



or application of the principles of the text in suitable problems. In subjects like history and rhetoric, recitations are sometimes oral and sometimes written on the blackboard, when they are corrected for style, grammar, punctuation, spelling, choice of words, and other faults, as well as for mistakes in facts. Explanations of different portions of the text are liberally made by the instructors, both before and after the cadets have studied them; but the cadet is expected to master the text before going to recitation, and the subject being assigned him to recite upon, he works out his own salvation." — *Richardson*.

"Thus it will be seen that the cadet's success depends upon the diligence he has acquired or the intelligence he was born with. No college or school in the country of an equally high grade has a system by which the student gets so much personal instruction as this. The small number of cadets in a section enables the instructor to give liberal time to each. This is a necessity, for it would be difficult otherwise to obtain the efficiency required, for the course is very extensive, and the time about the shortest in which it is possible to get over the ground. Every student follows the same course." — *Richardson*.

"The first two years are preparatory to the last two, in which are taken up all the technical and professional subjects." — *Richardson*.

"After completing the four years' course at the Naval Academy the cadets are sent to sea for two years in cruising-ships, after which they are returned to Annapolis for final examination. They then receive their commissions as ensigns, assistant engineers, or lieutenants in the marine corps. Thus the course for the naval

cadet is six years, while the West Pointer gets his commission at the end of the fourth year at the Military Academy." — *Fullam*.

"At the end of the third year a certain number of cadets are assigned to the engineering branch, and these cadets take an advance course in steam engineering, in lieu of seamanship, ordnance, and navigation, which studies are pursued only by those who remain in the line." — *Fullam*.

## INVENTION.

"Sheer necessity — the proper parent of an art so nearly allied to invention." — *Sheridan*.

THE young man who would turn his hand and his brain toward invention should have a clear idea of what invention is. He should know that three synonyms for the word "invent" are "adapt," "improve," and "develop." To invent is not to create. Well is it for us that this is the case, for the human mind would not be capable of it. One man creates or discovers the germ, and after a hundred men, or perhaps a thousand, have struggled with it, improving it a little here, developing it a little there, another man steps in and gives it a practical, a useful application, and we call him the great inventor, and heap fame and perhaps fortune upon him.

You can easily test the truth of this proposition for yourself. Try to think of one great invention that ever sprang upon the world full grown, without first going through the periods of tender infancy and uncertain youth. Can you pick out one? Some at first glance seem to have come upon the world like a flash, but investigation will show that they grew slowly from the germ.

Take the modern ocean steamship, for an example, one of the greatest creations of human brain and muscle. Wipe out, if you can do such a thing in your mind, all the boats and ships and floating contrivances whatever that came between the beginning of the world and the appearance of the great Atlantic liners, and imagine one man giving us the modern steamship full blown and full grown, without so much as a canoe for a basis to work

upon. Your mind is not capable of conceiving such a man — nor mine, nor any other finite mind. Alexander and Napoleon and Milton and Shakespeare and George Washington rolled into one would not be worthy to tie the shoes of such a man. No such wonderful man ever existed; such a man never will exist.

Any other example would do as well, but let us stand by the ship. How many men, think you, helped to give us what in our humility we call the present “perfect” machine for marine transit? Hundreds? We may be bolder and say billions. The first of them did not wear clothes, and had no high ideas of benefiting the human race. He knew nothing about the human race; cared nothing about it. Of course he could not read or write: there was nothing for him to read, no occasion for him to write. He stood upon the shore of a body of water, and for some reason desired to cross it or to go out upon it. We might guess a thousand reasons for his desire, but it is no matter. He wished, we will say, to cross the water; that is enough for us. He had no boat; there was not a boat in the whole world, his world extending in each direction just as far as he had ever travelled, or as far as his friends had travelled. But his desire to cross was strong; if enemies were pursuing him it may have been a necessity. He had seen a drifting log float, but there was no log at hand. He had also seen a broken reed float, and doubtless knew that a number of reeds drifted into a heap had considerable buoyancy.

There was an idea for him. The desire or the necessity quickened his wits, and he gathered a great armful of dry reeds and lashed them together with vines. Then he straddled his raft of reeds and with his open hands paddled himself across to his destination. He was a great inventor, but he did not know it.

There were no sails at that time, because there was no use for them. Things are not invented until we have need of them. Paddling across the water on rafts of reeds became the common means of transit. Another savage saw a chip or a dry leaf driven on the surface by the wind. This may have been almost at once, or it may have been generations later. As he paddled across the water he felt the wind blowing upon his naked back. Paddling was hard work, and he disliked exertion. He cut a leafy bush, jammed the stalk firmly between his reeds, and sailed across. There was the first sail, and there was another inventor. That savage was helping to design the wonderful six-day steamer that carries us over to Liverpool.

Long afterwards some other great inventor invented a way of producing fire by rubbing two sticks together. Do not give yourself airs over him, for after a little practice (a little practice in such a case means the improvements of perhaps five or six generations) he produced fire from his sticks in two minutes, and you could not do it in four hours. He also did his share in the development of the modern steamship.

The fame of that wonderful machine, the raft of reeds with the sail of leaves, reached other parts of the little world. But in some parts sitting astride a raft was inconvenient, because there were sharks in the water, and the sharks were hungry and particularly fond of feet and legs. To sail safely in those parts it was necessary to keep the feet out of the water. Meanwhile, the means of producing fire had been invented, and here were great trees blown down by the wind. One of the greatest inventors of that age hollowed out a broad tree-trunk with fire, and made the first canoe.

When people learned to make coarse cloth out of wool

or vegetable fibre, by the aid of another inventor, they thanked their Creator, no doubt, for the great advance of civilization, and pitied their ancestors who lived without cloth — just as we, poor things, pity our own ancestors who went to rest without the felicity of pressing an electric button. The brush stuck between the reeds soon disappeared before the real mast with the real sail.

I need not farther trace the growth of the modern steamer; you can readily see for yourself how the burnt-log canoe became, in the hands of another inventor, a boat built of timbers and hewn planks; how that skiff grew into a sloop, the sloop into a vessel with two or three masts, that vessel into a clipper, the clipper into a side-wheel steamer, the side wheeler into a propeller, the propeller into the modern greyhound. At every step there was an inventor — perhaps there were a thousand inventors. And every improvement was made because there was a need of it. That is the point I desire to make clear to you. But do not confound need with public demand. Often there is no public demand for an article that is much needed. The supplying of a useful article creates a demand for it.

The moral of this is, if you are going to spend your days and nights in inventing, invent something that the public need — something to make life easier, or better, or happier. You might spend your whole life in inventing and perfecting a marine bicycle, with which an individual could paddle across the Atlantic in ten days, and your life would be wasted, no matter how ingenious or wonderful the machine, because people do not desire to cross the ocean alone, and you cannot create such a desire.

What are nine out of ten of the great modern inventions but devices for making comfortable existence cheaper, and so easier? We use the telephone, where

our grandfathers sent a messenger. In their days messengers were cheap; now they are expensive. We turn a faucet, where they sent a servant to bring their water; servants were cheap then, and are expensive now. Changed modes of living necessitate new methods. They had a fireplace in every room, and servants to keep the fires burning. We, with our costly servants, put a furnace in the cellar to heat all the rooms, that requires only a few minutes' attention every day. It is cheaper, and gives more heat, but is less wholesome. They had no electric lights, but they had servants to light and snuff the candles. Do not imagine that they lived in a state of savage discomfort. All the things that we do now by pressing a button or turning a knob they did with a retinue of servants. The servants were the cheaper then; the knobs and buttons are the cheaper now. If labor were as cheap now as it was in slave lands in slave times, there would be no telephone, no electric light, no furnace in the cellar. In London a hundred things are done by the housemaids that in America we do with automatic contrivances. In London they pay the housemaid \$60 a year, and in America we pay her \$240 a year.

But can *you* invent anything and make money out of it? The probabilities are that you can invent something if you try. Whether you can make money out of it or not must depend upon your business ability. It has always been my belief that an inventor should have a partner — a man whom he could trust as he would trust himself. What the inventor produces, his partner can turn into money. I believe this because I have seen that ninety inventors out of a hundred, men who have invented useful and valuable things, go into the grave poor, while the capitalists who “took them up” have the money.



A shrewd business partner in most cases would have changed this. There is no longer any difficulty in this country about securing capital to develop or introduce any really good and valuable invention. The only question is whether it is really good and valuable. You, if you invent it yourself, probably cannot judge of that as well as the capitalist who regards it merely from a business standpoint. The capitalist here is to the inventor what the publisher is to an author. The author writes a book and sends it to a publisher, and the publisher declines it.

"I will bring it out myself," then says the author; particularly the young author. "It is good, and the public will buy it." He may be a wonderful writer, but he does not know the public as the publisher knows it. The publisher could not write half as good a book, or perhaps any book at all; but he knows the market, the demand, the state of the public mind. If he did not know them he would not be a publisher long. The author does not know them, does not even pretend to know them. He may reasonably try another publisher, and another and another till his manuscript is worn out; but if not one of them has sufficient confidence in his work to publish it, and he sets himself up to know more than them all and publishes the book himself, he is a foolish man. So it is with the capitalist and the inventor. The capitalist is not likely to know much about inventions except in a money-producing sense. But he must know something about making money, or he probably would not be a capitalist. If one such man after another refuses to touch your invention it is time for you to pause and reflect. Do not think that because you invented the thing yourself it is the best thing in the world. No matter how rich your capitalist may be, do

not imagine that it is "too small a thing for him to bother with." Capitalize him at fifty millions if you like; and if you show him a reasonably sure way to add ten thousand dollars to his store he will not let you escape. With a good article you can always find the money.

Rest assured that you can be an inventor in one part of the country, or of the world, as well as in another. In the mountains of Tennessee you can invent as well as in the heart of inventive New England. Nature does not make a New Englander more inventive than a Texan. It is his surroundings, not nature. At first the New Englander had to invent and make things for his own use. His son invented things because he needed money. His grandson continues to invent things because he sees eminent examples of profitable invention all around him. Here on the New England river-bank is a big factory where they make mouse traps. The inventor of that trap made an immense fortune. Across the river is a pin factory. The pin man made a million and his children are enjoying it. Here on the edge of the woods is a mammoth establishment, built of bricks, with a row of tall chimneys. What do you think they make in those huge buildings? Knuckle joints for buggy tops. Perhaps you never thought of such things being made by any one; but somebody thought of it, and made a great fortune by it. That expensive coach just going into the fine grounds, drawn by sleek horses in plated harness, dashing up to the stone mansion, represents an improved method of sticking gum on the flaps of envelopes. With such examples all about him, the New England boy would be less than human if he did not begin early to inquire what trap or joint or gunning-machine was to make *his* fortune. If you live in a newer part of the country you probably have not this in-

centive of illustrious example ever before your eyes. But the factories of New England are all built of a material that is equally abundant in your part of the country — brain.

“ O for a Muse of fire, that would ascend  
The brightest heaven of invention ! ”

*Shakespeare.*

## THE CHILD OF NECESSITY.

"THE history of the development of the inventive faculty is the history of humanity. In other respects we may resemble our friends, the brutes, but here we part company intellectually, subdue and enslave them, and have dominion over the earth." — *Otis T. Mason, of the National Museum.*

"The term 'invention' applies to four different yet related groups of phenomena: first, the things and institutions invented; second, the mental acts involved; third, the rewards and benefits of these acts; fourth, the power and materials of nature invoked." — *Mason.*

"I hold that all industries, arts, languages, institutions, and philosophies are inventions. The history of the mental acts is a kind of an evolutionary series, beginning with the taking notice and following examples and ending with the highest coöperation in a great industrial establishment, — with a symphony, with the writing of a dictionary, or with the framing of a government." — *Mason.*

"Institutions are not aboriginal. Every one of them was once the act of a single man; every law and usage was a man's expedient to meet a particular case." — *Emerson.*

"In certain exigencies even the invertebrates seem to have concentrated their intellectual activity upon methods of safety or escape. The conduct of one of these creat-

ures in such emergencies is most instructive. First it discovers the necessity, then follows a short period of confusion, finally the creature buckles down to hard thinking and experiment. The persistence of these humble inventors is often remarkable. Having conceived that the way of escape lies in a certain direction, it yields only to exhaustion or death." — *Mason*.

"The elaboration of rewards to be bestowed upon inventors from age to age should not be neglected. In this, as in the other series of phenomena, there has been increasing complexity and a sort of evolution. The public recognition and reward of invention may itself be said to have been invented. At first the public accorded really nothing. The man seized his own patent. His better boat or fish-hook got him more food, made him stronger, more acute, taught him that ingenuity is better than force, secured him admiration, respect, fear, obedience, homage, a larger number of wives, and a more numerous following. Later in history the tribe absorbed the benefit, then the state. Empty emoluments and public honors took the place of personal comfort. The inventor was crowned, or knighted, or medalled, or mentioned in the public fêtes. The history of the modern patent system would involve all of these." — *Mason*.

"The next inventor was Jonathan Hull, of Campden, in Gloucestershire. He patented a steamship in 1736, and worked the paddle wheel placed at the stern of the vessel with a Newcomen engine. He tried his boat on the river Avon at Evansham, but it did not succeed, and the engine was taken on shore again. A local poet commemorated his failure in the following lines, which were remembered long after the steamboat experiment was forgotten :

“ ‘ Jonathan Hull,  
 With his paper skull,  
 Tried hard to make a machine  
 That should go against wind and tide;  
 But he, like an ass,  
 Could not bring it to pass,  
 So at last was ashamed to be seen.’ ”

*Samuel Smiles.*

“Ericsson was a born inventor. While a boy in Sweden he made saw-mills and pumping-engines with tools invented by himself. He learned to draw, and his mechanical career began. When only twelve years old he was appointed a cadet in the Swedish corps of mechanical engineers, and in the following year he was put in charge of the Gotha ship canal, then under construction. Arriving at manhood, Ericsson went over to England, the great centre of mechanical industry. He was then twenty-three years old. He entered into partnership with John Braithwaite, and with him constructed the ‘Novelty,’ which took part in a locomotive competition at Rainhill, on the 16th of October, 1829.” — *Smiles.*

“Invention is the talent of youth and the judgment of age.” — *Swift.*

“Necessity is commonly said to be the mother of invention; that is, all changes in human action are stimulated by man’s needs. Now, there are two classes of these; namely, those that come from within the individual, and those that affect him from without. Of the former, hunger is the loudest. By hunger is meant the desire for food, or drink, or whatever enters the alimentary canal. The sense of fatigue, and the desire for rest; the pain of monotony, and the desire for change; and many more, belong to this objective stimuli.” — *Mason.*

“The desire for warmth or cold, shelter, of refuge from the storm, the sense of danger in the presence of savage beasts or man ; in short, the discomforts which are produced by want of harmony between a man and his environment, constitute the second class of stimuli. In the more lowly organized creatures, dwelling in the water, this disharmony is feeblest. The light, the temperature, the movements, the specific gravity, even, are almost unchanging.” — *Mason*.

“Exactly as the inventive faculty, the things invented, and the rewards have passed through interesting evolutions, in which, also, the old ever survives into the new, so, in the matter of stimuli, there has been a parallel history. The pains of hunger are not the same in savagery and civilization. The desire for house, and clothing, and conveniencies, and art products, and society, and literature, and the explanation of things, are childish, in the one case, and most exalted in the other. The evolution of human wants, therefore, is a part of the history of invention.” — *Mason*.

“Men were placed on earth to dress and keep it, to possess and subdue it. Through this wonderful faculty of invention the race has fulfilled its mission.” — *Mason*.

“One is perpetually hearing sociologists saying that men do not invent customs, but fall into them. Grant that the ninety and nine do follow suit, and in addition grant that each one of us follows his leader all but the thousandth time. It is the one act in a hundred or thousand that each one originates that constitutes the progress of the world. Again, we read that peoples do not invent civilization, but borrow it ; that one man left to himself would die, and that no people ever arose by



itself. Borrow from whom ? Where did the first lender get his stock ? ” — *Mason*.

“ It is inconceivable. It would be ungrateful to the ingenious minds that have brought a whole species of ignorant and inexperienced creatures to know and to conquer the world in an incredibly brief time, if we ignore or deny the existence of this adventurous spirit of climbing for the sake of being higher, of learning for the sake of knowing, and of inventing for the sake of inventing. Then, indeed, would æons and æons have been necessary for the evolution of our species, and man would have had to start farther back than tertiary times to have profited and achieved so much.” — *Mason*.

“ The civilized man passes his whole life in the midst of wheels, and cranks, and engines of iron. His eyes are on them every day. Now and then a new thought occurs to him in their motion, an improvement which would facilitate their action, and lessen his pains or expenses. That is called invention, for which he seeks a patent. The savage man passes his life away from wheels. He never saw a wheel until the newcomer showed it to him, but there are around him all sorts of suggestive things that take the place of wheels. He sees how he could improve them so as to facilitate their action and so as to lessen his labor and multiply his gains. He makes the change. Is not that an invention also ? ” — *Mason*.

“ It is among the most secluded inhabitants, indeed, among the rudest tribes, who are partly still addicted to cannibalism ; aye, in the very heart of Africa, whither not even the use of cotton s tuffs, and hardly that of glass beads, has penetrated, where we find the indigenous mechanical instinct.” — *Schweinfurth*.

“Captain Spicer, a whaler who mingled with the Eskimos, told the writer that they often make invention a part of their sport. They go out to certain difficult places, and, having imagined themselves in certain straits, they compare notes as to what each one will do. They actually make experiments, setting one another problems in invention.” — *Mason*.

“There is another error, equally illogical, in which many writers have fallen, in supposing that the ancients and prehistoric peoples were possessed of arts and mechanical appliances far in advance of aught we have nowadays. These are called lost arts, and it is averred that they are now beyond the sagacity of man. The answer to this argument is, in the words of the Wise Man: ‘To every thing there is a season and a time for every purpose under heaven.’ The thing that hath been is the thing that may be, if it is desirable. The reason why arts are lost is that they have become antiquated by others higher in the scale, or because they were practised by a limited number who moved in a side current, and whose secret died with them.” — *Mason*.

“In the higher walks of invention there is a perpetual rivalry between the mechanic and his work, between the scientist and his apparatus. In the lower levels of progress this emulation is often found between the savage man and the material with which he works or the tool with which he achieves his result. If one were to mark the history of sculpture he would notice at once a constant increase in the intractability of the material. This increase would also be coupled with a parallel improvement in the means of overcoming the resistance. Each success would embolden the sculptor to venture upon even finer rocks. As long as there was one mineral in sight

that he could not work, this would be a standing menace to his ambition. The handier he became in mastering the stone which he had already attacked, the more eager would he be to find more difficult material to master." — *Mason*.

"A great deal that has been written about primitive industries and inventions is wide of the mark because the writer has failed to take into account what may be called the knack of the age or the tribe, or the particular method. He has described it as clumsy and said that for the life of him he could not imagine how people could get along with such appliances. But they did. You will see a professional ethnologist fretting for hours to get a spark of fire from two sticks. The savage will do it for him in as many seconds. By and by the former acquires the knack and then his trouble vanishes. Lafitau says that the polishing of a stone axe requires generations to complete. Mr. Joseph D. McGuire fabricates a grooved jade axe from an entirely rough spall in less than a hundred hours. Every one who reads this will recall examples of this advance; not only among juggler and turners, but in the shop, on the farm, about the house there is always some one who has the knack of doing a thing." — *Mason*.

"The Dean was famous in his time.  
He had a kind of knack of rhyme."

*Swift.*

"In tracing the progress of invention or culture through the lowly tribes of the past it is not necessary to make the description of monstrosities and all the deeds of human monsters the chief aim. These are atavistic, and exhibit the elements of destruction and decay. The people practising such things are in the suburbs of the world, passing away in the very nature of things. It is

not out of such bloody conduct our present civilization issued, but its progress was away from such things. Our culture is the offspring of parents whom it resembles. A people that practices infanticide and brutality to women has signed its death warrant. No cultured race ever arose out of such savagery as that. Among the most seemingly brutal savages there is a higher portion of society, the party of progress." — *Mason*.

"The Mediterranean race is the most mechanical of all; the blue-eyed and the brown-eyed variety must each settle for himself which shall bear the palm. The Semite is much less so. The Mongolian is perhaps more ingenious with his hands. The Africans, Papuans, are more mechanical than the brown Polynesians, the Eskimos than the red Indians, and the Australians are the least clever of all. In each division of humanity there are similar centres of invention, owing both to natural ingenuity and natural resources. In the higher walks of language, art, social structures, literature, science, and philosophy, the peoples of Europe and Asia will need a new distribution for each classic concept. The Hebrew has never been excelled for sublime conceptions on religious topics, the Egyptian invented chronicles, the Greek perfected harmony and portraiture in art, the Romans laid the foundations for jurisprudence." — *Mason*.

"The Hurons, with small sharp stones, extracted blood from their arms to mend and glue together their broken clay pipes or pipe-bowls, which is a very good device, and the more admirable since the pieces so mended are stronger than they were before." — *Sagard*.

"The shears of savages do not work like those of the civilized. There is not a pair of cutting edges, one work-

ing along the other. There is only one cutting edge, and the other piece is held at right angles. Indeed, there is no cloth or ribbon to be cut, only skin and human hair. The savage mother holds a bit of wood or leather against the child's head and haggles off the ends of the hair with a sharp stone or shell. The finishing touches are given with a fire-brand. This practice was common among all American tribes." — *Mason*.

"It is frivolous to fix pedantically the date of particular inventions. They have all been invented over and over, fifty times. Man is an arch machine, of which all these shifts, drawn from himself, are toy models. He helps himself in each emergency by copying or duplicating his own structure just as far as the need." — *Emerson*.

"The fine invention is nothing more than a fine deviation from or enlargement on a fine model. Imitation, if noble and general, insures the best hope of originality." — *Bulwer-Lytton*.

## ASTRONOMY.

“Heaven’s ebon vault  
Studded with stars unutterably bright,  
Through which the moon’s unclouded grandeur rolls,  
Seems like a canopy which love has spread  
To curtain her sleeping world.”

*Percy Bysshe Shelley.*

“AN undevout astronomer is mad,” wrote Edward Young, a century and a half ago. There is even more reason for saying so now, for with our powerful modern instruments we have a better knowledge of the heavens than was possible for our ancestors. But it is as an occupation, as a means of gaining a livelihood, that we must consider astronomy, rather than for its effect upon the mind; and it should be said at the beginning that no man can hope to make even a moderate living by becoming an astronomer unless he is so full of the subject, so full of information on the subject, that he cannot help imparting it to other people.

A short time ago I wrote to one of the best-known astronomers in the United States, whose acquaintance I have enjoyed for many years, asking him to tell me what he thought of the chances for the success of a young man who had a liking for the science and who took it up for his life-work. Here is his answer:

“Astronomy is probably the poorest science a young man could take up to make a living at. It is purely science for the sake of science, and has few practical applications in actual life. All that it does in furnishing ‘time’ for the business world could be accomplished

by a person having no knowledge whatever of the real depths of the science. Observatories are few, and I doubt if there are as many as one or two hundred people in the United States receiving salaries for astronomical work. The young astronomer must find his reward in the work itself. For reading up I would suggest Young's 'General Astronomy,' Newcomb's 'Popular Astronomy,' Ball's 'Story of the Heavens,' Todd's 'New Astronomy,' and Langley's 'New Astronomy,' besides any modern text-books on the subject the student may come across."

That is a somewhat gloomy picture for the young man who has learned enough about the science to become interested in it, and who desires to continue its study and to live by it. But there are two sides to the picture. The writer of the above lines has lived on stars for many years, and nothing would induce him to change his diet. He has arrived at such distinction that when he has anything to write about the heavens the leading periodicals are glad to pay large prices for his articles. And such writing is not, as you may think, another profession entirely. It is not his style of writing, but his knowledge of astronomy that the magazines are willing to pay for. Then he writes books on astronomy, though he has modestly omitted his own works from the list he gives. All the profit from those books comes straight from the heavens, for without his astronomical knowledge he could not write them.

"But suppose that I am not able to write such articles," I hear you ask, "then how am I to make a living if I become an astronomer?" Then if you are going to begin supposing, let me suppose something too. Suppose that you really have your head and heart full of astronomy, as most first-rate astronomers have, and some young men who would like to become first-rate astrono-



mers. Suppose that this feeling lies so deep that you desire also to know something about the tools with which you would work — the instruments with which you would scan the heavens. It is well not only in every trade, but in every profession also, to understand the tools you must work with. The astronomical instrument-maker supplies the tools with which an astronomer works. Those tools must be made, men must make them, young men must learn how to make them. It is as important for an astronomer to understand the mechanism of his tools as for a printer to understand his presses. A first-rate astronomer who can make and repair his own tools, keep his instruments in order, make a little improvement here and a little improvement there, is in a better position than the equally good astronomer who cannot do these things. If you have that within you which will make a great astronomer of you, you will not be alarmed at the idea of learning a trade that is necessary to the practice of that science. That is one of the ways in which you can combine an income with a science.

Another astronomer whom I know, whose name you would recognize in a moment, began with nothing at all. It would hardly be fair to him for me to mention his name in telling of his early struggles. He is said to have made more important astronomical discoveries than any other man of his time. When I first knew him, a quarter of a century ago, he had a photograph-gallery in a small town in the central part of New York State, where there were few people to be photographed, and lived in the suburbs in a tiny house that was painted bright red, because, I imagine, red paint was cheaper than paint of any other color. While his hand was making photographs, his heart was among the stars. Nothing short of death could have prevented that man from

becoming an astronomer. Country photographers are not wealthy, as a rule, and he had no money to buy instruments with. His first telescope he made himself. By long saving he was enabled to buy a better one, which he mounted in the upper part of his house. Then his discoveries began, and attracted attention. In a short time more scientific men visited the little town than had ever heard of it before. He invented instruments for photographing many of his discoveries, and the "Little Red House Observatory" became famous among astronomers. Such a man could not long remain a country photographer, and he was invited to take the chair of astronomy in one of the leading universities. And you need not fear that he discovered everything. There is as great a field for you as there was for him.

For preliminary work in astronomy you need no expensive instruments; your own eyes and brain are enough for the beginning, though an opera-glass, a spy-glass, or a small telescope, if you can secure one of them, will give your eyes valuable assistance. The advice given by Dr. Edward S. Holden, director of the famous Lick Observatory, is to read all the astronomical articles in any encyclopædia within reach, such as those on the telescope, the sun, the planets, the stars, and the sundial. At the same time begin to make observations with an opera-glass, a spy-glass, or a telescope; or, if none of these can conveniently be had, with the unassisted eye. You will find terms in the astronomical articles that you will not understand; do your best to learn their meaning, but if you fail, never mind them; go ahead without them; you will grasp their meaning when you gain a little more astronomical knowledge.

When you look at the stars at night, one looks very much like another; but that is only at the beginning; a

little attention will show differences between them. The differences in brightness soon become plain, and there are also differences in color. There are maps of the stars in many encyclopædias; but if you have to buy one, Dr. Holden recommends Proctor's "Half-hours with the Stars," and advises the young student to identify the stars of each constellation as depicted on the map. This gives familiarity with the constellations, and also with the several stars within them. Every one who has taken a few lessons in astronomy knows the tail of the Great Bear, the "Dipper;" but the constellation becomes a very different thing when you trace it all out and find the pairs of stars that make the feet and other parts of the body.

After you have learned how to find a star's position in the sky from the information given on the map, you should search out some variable star, and watch it night by night, till it has gone through its whole cycle. A variable star is one which periodically changes in brightness. Watch it while it grows fainter and fainter, till it becomes almost invisible; then again as it increases in brightness till it is at its best — at its best, that is, from our point of view. Compare its brightness frequently with the brilliancy of some star that does not change. Keep a record of your observations, making a note of the time when they were taken. "When you can do all this neatly, quickly, well, without mistake, you have," as Dr. Holden says, "taken a long step forward."

The same authority recommends, after the student has provided himself with the "Half-hours with the Stars," which is not an expensive work, that he begin to make observations with an opera-glass or field-glass. I shall quote one of his sentences verbatim, to call your particular attention to the latter part of it. "It is generally not

worth while to spend time in making your own telescope," he says, "though much can be learned in that way." Much can be learned in that way. There is the opinion of an astronomer of note, supporting what I have told you about knowledge of the instruments. An astronomer unfamiliar with the mechanism of the telescope would be as much at sea as a carpenter ignorant of the use of the plane. The workman must know his tools.

The money spent on a good opera-glass, Dr. Holden says, is never thrown away. But not all opera-glasses are good, and in buying one you should have advice, and buy it from some trustworthy firm. The two barrels should be just as far apart as your eyes, so that you see only one image, not two; it should come quickly to focus, and not have a considerable space over which the focus is equally good, which generally means equally bad. It should not be too short, nor too light.

With the book named, and a good opera-glass, a great deal may be learned. I am still using the ideas, and in some cases the words, of Dr. Holden, in the advice he recently gave through the "*Youth's Companion*," of Boston, to beginners in astronomy, because he is not only an experienced astronomer, but he has had long experience in teaching the science to others. The next book to be obtained and studied is "*Astronomy with an Opera Glass*," by Garrett P. Serviss. You have very likely read some of Mr. Serviss' astronomical articles in the newspapers and magazines; if you have read even one of them you know that he understands how to make astronomy interesting to the public.

"After you have mastered the contents of Mr. Serviss' book," Dr. Holden continues, "it will be time for more exact notions, and you will probably get these from some text-book in school. The text-books for high

schools by Professor Young, 'Elements of Astronomy,' and by Professor Newcomb and Dr. Holden, 'Astronomy — Briefer Course,' are used in most schools, and either of them will be found useful to any one who wishes to study without a master.

"To those who can afford it," Dr. Holden advises, "this is the time to buy a more expensive telescope. One of two-and-a-half, or three, or four inches aperture is a really satisfactory instrument. Such a one is usually mounted on a tripod stand, and can be carried from place to place. It will have eye-pieces magnifying from, say, one hundred and fifty times for the two-and-a-half inch to, say, three hundred times for the four-inch.

"A better star-atlas is now needed, — McClure's edition of Klein's 'Star Atlas,' published in New York, is, on the whole, the best, — and this is the time to buy two very useful books; namely, Webb's 'Celestial Objects for Common Telescopes,' and Mr. Westwood Oliver's 'Astronomy for Amateurs.'

"By the time this stage is reached you are probably in the high school or in college, and your best adviser will be your teacher. Making the observations themselves you must learn by practice, and the things to be attended to are different according as you are observing the sun, the moon, stars, planets, comets, clusters, nebulae. Moreover, I have mentioned only a few of the books which ought to be read. Any library will have dozens more, and something is to be learned from every one of them. If you have the time to spare, read them all, if you will make the resolution to believe them only provisionally. One of the best popular books is Sir Robert Ball's 'Story of the Heavens,' which is in most large libraries.

"Finally, if you wish really to know something of

astronomy, you should arrange your college course with that object. You will need all the mathematics you can get in college, all the physics, and plenty of practice in the physical laboratory — there is no better training for an astronomer. You will need French; German and Latin will be useful, and you will also need enough athletics to give you perfect health and a good temper.

“After the college course is over, if you wish to start right in the profession you should have three years of university training. It used to be necessary to go abroad for this, but it is not now. There are several places in America — the Lick Observatory is one of them — where sound and sufficient university training in astronomy can be had by any one who is prepared to take it.”

There are some passages in these quotations from Dr. Holden that need explanation and perhaps a little comment. The young astronomer, in his opinion, is to be a collegian, and after graduation is to take a three years' university course. That is a serious matter for most young men to contemplate. It is not quite equal to Dr. Shradý's eighteen years of training to make a physician, but still serious enough. The value of a collegiate and university training to you or to any other young man is beyond question; we need not stop to discuss that. But the question before us is whether a man can become an astronomer of the first rank without such a training. Let us look at it from a practical standpoint and in the light of some brilliant examples, glancing first at the particular requirements which Dr. Holden mentions: “All the mathematics you can get in college, all the physics, and plenty of practice in the physical laboratory,” we may grant at the outset, with the mere suggestion that college has not a monopoly of mathemat-

ics and physics, which are open to all the world, in college or out of it.

“You will need French; German and Latin will be useful.” Ask yourself why you will need a knowledge of French and German. So that you can read the works of French and German astronomers, of course. Then let me tell you that if you spend thirty years in a university instead of three, you will read the translations of those works instead of reading them in the original. French and German will never become as familiar to you as your own language, and a busy man will not read in a foreign original what he can get in a good translation. Some good works are not translated, but they are few. Most of the standard works of French and German astronomers, and nearly all of their ideas, may be had in English.

Then Latin. Many Latin names and terms are used in astronomy. They are all fixed and arbitrary. Once learned, they are as easy to the student as the name of the Great Bear. Scarcely any knowledge of Latin is necessary to understand them. And when we speak of a knowledge of Latin, ask yourself, “What *is* a knowledge of Latin?” Can any man be said to know a language who cannot speak it? Did you ever hear two collegians conversing in Latin? If you set out to learn the language, learn it so thoroughly that you can go to some Catholic priest in your neighborhood and talk with him in Latin. I do not underestimate the value of any kind of learning; but I would not have you deceived by the form of scholarship that stumbles painfully through a Latin verse and then expatiates upon the enormous advantage of a knowledge of the language.

Two leading American astronomers I have long numbered among my friends. Both are highly successful



men. Neither, to the best of my knowledge, is a college-bred man. Doubtless it would have been better for both if they had been, but it was not a necessity. Sir William Herschel, one of the most famous of all astronomers, was not a collegian. His father was a hautboy player in a band of the Hanoverian Guards. Sir William had little education until he reached middle life. He was a musician, an organist, and a good one. He was nearly thirty-five when, being settled in England, he sent for his sister Caroline to come and help him make a telescope. In those days (it was in 1772) telescopes were rare and costly, and not very good. Herschel hired a small Gregorian reflector of about two inches aperture. This did not satisfy him, and he bought a small lens of about eighteen feet focal length, and his sister made him a pasteboard tube eighteen feet long, so converting the lens into a crude telescope. Of course such a tube bent, and he had one made of tin. That was his first telescope. He did not need to read the works of French or German astronomers, for he soon knew more about the heavens than all of them combined. Ten years after he made the tin telescope George III. invited him to Windsor and appointed him his private astronomer. In any good encyclopædia you will find an account of his struggles and triumphs, and it will interest you. He educated himself, as you can do if necessary. He had a love of the science, and grit and common sense, — as you must have, if you would make your way in it.

“Wherever the bright sun of heaven shall shine,  
His honor and the greatness of his name  
Shall be, and make new nations.”

*Shakespeare.*

## THE STUDY OF THE HEAVENS.

“PERHAPS one reason why the average educated man or woman knows so little of the starry heavens is because it is popularly supposed that only the most powerful telescopes and costly instruments of the observatory are capable of dealing with them. No greater mistake could be made. It does not require an optical instrument of any kind, nor much labor as compared with that expended in the acquirement of some polished accomplishments regarded as indispensable, to give one an acquaintance with the stars and planets which will be not only pleasing but useful.” — “*Astronomy with an Opera Glass*,” by Garrett P. Serviss.

“With the aid of an opera-glass, most interesting, gratifying, and in some instances scientifically valuable observations may be made in the heavens. I have more than once heard persons who knew nothing about the stars, and probably cared less, utter exclamations of surprise and delight when persuaded to look at certain parts of the sky with a good glass, and thereafter manifest an interest in astronomy of which they would before have believed themselves incapable.” — *Serviss*.

“Galileo made his famous discoveries with what was in principles of construction merely an opera-glass. This form of telescope was afterward abandoned because very high magnifying power could not be obtained with it and the field of view was restricted. But on account of its brilliant illumination of objects looked at, and its

convenience of form, the opera-glass is still a valuable, and in some respects an unrivalled, instrument of observation." — *Serviss*.

"In choosing an opera-glass see first that the object-glasses are achromatic, although this caution is hardly necessary, for all modern opera-glasses worthy the name are made with achromatic objectives. But there are great differences in the quality of the work. If the glass shows a colored fringe around a bright object, reject it. Let the diameter of the object-glasses, which are the large glasses in the lens farthest from the eye, be not less than an inch and a half. The magnifying power should be at least three or four diameters. A familiar way of estimating the magnifying power is by looking at a brick wall through one barrel of the opera-glass with one eye, while the other eye sees the wall without the intervention of the glass. Then notice how many bricks seen by the naked eye are required to equal in thickness one brick seen through the glass. That number represents the magnifying power." — *Serviss*.

"See that the fields of view given by the two barrels of the opera-glass coincide or blend perfectly together. If one appears partially to overlap the other when looking at a distant object the effect is very annoying. This fault arises from the barrels of the opera-glass being placed too far apart, so that their optical centres do not coincide with the centres of the observer's eyes." — *Serviss*.

"On account of faulty centring of the lenses a double image is occasionally given of the objects looked at. In such a case the glass is worthless; but if the effect is simply the addition of a small crescent-shaped extension

on one side of the field of view, without any reduplication, the fault may be overlooked, though it is far better to select a glass that gives a perfectly round field. Some glasses have an arrangement for adjusting the distance between the barrels to suit the eyes of different persons, and it would be well if all were made adjustable in the same way." — *Serviss*.

"Don't buy a cheap glass, but don't waste your money on fancy mountings. There are a few makers whose names stamped upon an instrument may generally be regarded as a guarantee of excellence. But the best test is that of actual performance. I have a field-glass which I found in a pawn-shop, that has no maker's name upon it, but in some respects is quite capable of bearing comparison with the work of the best advertised opticians." — *Serviss*.

"A good field or marine glass is in some respects better than an opera-glass for celestial observations. It possesses a much higher magnifying power, and this gives sometimes a decided advantage." — *Serviss*.

"Shall we set down astronomy among the subjects of study? The use of astronomy is not to add to the vulgar comforts of life, but to assist in raising the mind to a contemplation of things perceived by the pure intellect alone." — *Socrates*.

"He (William Herschel) hired, to begin with, a small reflector; but what it showed him merely whetted his curiosity. The price of a considerably larger instrument proving more than he could afford to pay, he took the momentous resolution of being for the future his own optician. This was in 1772. He at first tried fitting

lenses into pasteboard tubes, with the poor results that can be imagined. Then he bought from a Quaker who had dabbled in that line the discarded rubbish of his tools, patterns, polishers, and mirrors; and in June, 1773, work was begun in earnest. After two hundred failures a tolerable reflecting telescope was produced, about five inches in aperture and with five and a half feet focal length. The outcome may seem small for so great an expenditure of pains, but those two hundred failures made Herschel an expert, unapproached and unapproachable, in the construction of specula. With his new instrument, on March 4, 1774, he observed the nebula in Orion, and the record of this beginning of his astronomical work is still preserved by the Royal Society." — *"The Herschels," by Agnes M. Clerke.*

"Herschel began in 1780 his second review of the heavens, using a 7-foot Newtonian, 6½-inch aperture, with a magnifying power of 227. 'For distinctness of vision,' he said, 'this instrument is perhaps equal to any that ever was made.' His praise was amply justified. As he worked his way with it through the constellation Gemini, on the night of March 13, 1781, an unprecedented find occurred. A new planet swam into his ken. He did not recognize it as such. He could only be certain that it was not a fixed star. His keen eye, armed with the perfect telescope, discerned at once that the object had a disc, and the application of higher powers showed the disc to be a substantial reality." — *Clerke.*

"At that epoch new planets had not yet begun to be found by the dozen. Five besides the earth had been known since the remotest antiquity. Five, and no more, seemed to have a prescriptive right to exist. The boundaries of the solar system were of immemorial establish-

ment. It was scarcely conceivable that they should need to be enlarged. The notion did not occur to Herschel. His discovery was modestly reported to the Royal Society as the account of a comet. It was not until a year later, Nov. 7, 1782, that he felt sufficiently sure of its planetary status to exercise his right of giving it a name. The title ‘Uranus,’ proposed by Bode, of Berlin, survived.” — *Clerke*.

“This discovery made the turning-point of Herschel’s career. It transformed him from a music-master into an astronomer. Without it his vast abilities would probably have been in a great measure wasted.” — *Clerke*.

“Astronomy is not a science which had its origin in interest; it sprung from the curiosity of man — a curiosity that leads him upward through the works of creation to creation’s God — a science which has been increasing, expanding, and developing through all time, until it has become the exponent of the highest powers of the human intellect.” — *Mitchell*.

“The state of perfection to which astronomy is now brought is the greatest triumph of human exertion and reason. The motions of the moon and planets are known with the utmost accuracy; our knowledge of the planetary system may be regarded as complete; that of the sidereal heavens must always be limited by the optical powers of the human eye and the telescope; in this department of astronomy a boundless field has been thrown open for human research.” — *Galileo*.

“The contemplation of celestial things will make a man both speak and think more sublimely when he comes down to human affairs.” — *Cicero*.

"Astronomy is one of the sublimest fields of human investigation. The man who grasps its facts and principles receives something of the enlargement and grandeur belonging to the science itself. It is a quickener of devotion." — *Horace Mann*.

"The narrow sectarian cannot read astronomy with impunity. The creeds of his church shrivel like dry leaves at the door of the observatory." — *Emerson*.

"There is but one key that can unlock the mysteries of astronomy, and that is sound and sufficient knowledge of mathematics, the great instrument of exact inquiry, without which no man can ever make such advances in this or any other of the higher departments of science as can entitle him to form an independent opinion on any subject of discussion within their range." — *Sir John Herschel*.

"I remember on one occasion hearing Lord Rosse explain how it was that he came to devote his attention to astronomy. It appears that when he found himself in a position of leisure and means he deliberately cast around to find how that leisure and those means could be most usefully employed. Nor was it surprising that he should search for a direction which would offer special scope for his mechanical tastes. He came to the conclusion that the building of great telescopes was an art that had received no substantial advance since the great days of William Herschel. He saw that to construct a mighty instrument for the study of the heavens required at once the command of time and the command of wealth, while he also felt that this was a subject with inherent difficulties that would tax to the uttermost whatever mechanical skill he might possess. Thus it was that he decided that



the construction of mighty telescopes should become the business of his life." — "*Great Astronomers*," by Sir Robert S. Ball.

"When looking for faint and difficult objects the plan pursued by telescopists is to avert the eye from the precise point upon which the attention is fixed in order to bring a more sensitive part of the retina into play than that usually employed. Look toward the edge of the field of view while the object you are seeking is in the centre and then, if it can be seen at all with your glass, you will catch sight of it, as it were, out of the corner of your eye. The effect of seeing a faint star in this way in the neighborhood of a large one whose rays hide it from direct vision is sometimes very amusing. The little star seems to dart out into view as through a curtain, perfectly distinct, though as immeasurably minute as the point of a needle, but the instant you direct your eyes straight at it, presto! it is gone." — *Serviss*.

"Having fixed the general outline and location of the constellation in your mind and learned to recognize the chief stars, take your opera-glass and begin with the constellation Leo and the star Regulus. Contrive to have some convenient rest for your arms in holding the glass, and thus obtain not only comfort but steadiness of vision. A lazy-back chair makes a capital observing seat. Be particular to get a sharp focus. Remember that no two persons' eyes are alike and that even the eyes of the same observer occasionally require a change. In looking for a difficult object I have sometimes suddenly brought the sought-for phenomenon into view by a slight turn of the focussing-screw." — *Serviss*.

“One of the most famous temporary stars on record appeared in the year 1604. At first it was far brighter than any other star in the heavens ; but it quickly faded and in a little over a year disappeared. It is particularly interesting because Keppler — the quaintest and not far from the greatest figure in astronomical history — wrote a curious book about it. Some of the philosophers of the day argued that the sudden outburst of the wonder-star was caused by the chance meeting of atoms. Keppler’s reply was characteristic as well as amusing : ‘I will tell these disputants, my opponents, not my own opinions, but my wife’s. Yesterday when I was weary of writing, my mind being quite dusty with considering these atoms, I was called to supper, and the salad I had asked for was set before me. “It seems, then,” said I aloud, “that if pewter dishes, leaves of lettuce, grains of salt, drops of water, vinegar and oil, and slices of egg, had been flying about in the air from all eternity, it might at last happen by chance that there might come a salad.” “Yes,” said my wife, “but not so nice and well dressed as this of mine is.” ’ ” —*Serviss*.

“In order to view the sun it is of course necessary to contrive some protection for the eyes. This may be constructed by taking two strips of glass, four or five inches long and an inch wide, and smoking one of them until you can without discomfort look at the sun with it. Then place the two strips together, with the smoked surface inside, taking care to separate them slightly by pieces of cardboard, placed between the ends, and fasten the edges together with strips of paper gummed on. Then, by means of a rubber band, fasten the dark glass thus prepared over the eye end of your opera-glass, in such a way that both of the lenses are completely cov-

ered by it. It will require a little practice to enable you to get the sun into the field of view and keep it there, but for this purpose you should assume a posture — sitting, if possible — which will enable you to hold the glass very steady. Then point the glass nearly in the direction of the sun and move it slowly about until the disc comes in sight. It is best to carefully focus your instrument on some distant object before trying to look at the sun with it.” — *Serviss*.

“ Science is, I believe, nothing but trained and organized common sense, differing from the latter only as the veteran may differ from the raw recruit. And its methods differ from those of common sense only so far as the guardsman’s cut and thrust differ from the manner in which the savage wields his club.” — *Huxley*.

“ Science — in other words, knowledge — is not the enemy of religion ; for if so, then religion would mean ignorance. But it is often the antagonist of school-divinity.” — *Oliver Wendell Holmes*.





UNIVERSITY OF CALIFORNIA AT LOS ANGELES  
THE UNIVERSITY LIBRARY

This book is **DUE** on the last date stamped below

DEC 13 1960

REC'D ED-URL

LD  
URL

OCT 21 1969

OCT 28 1969

444 DEC 09 2001

UC SOUTHERN REGIONAL LIBRARY FACILITY



**AA** 001 018 484 4

UNIVERSITY OF CALIFORNIA-LOS ANGELES



**L** 008 295 994 1



